Nisqualli Road Trailer Lot Expansion

NOISE AND VIBRATION ANALYSIS

CITY OF VICTORVILLE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Nisqualli Road Trailer Lot Expansion
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
SCLA	Southern California Logistics Airport
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Nisqualli Road Trailer Lot Expansion development ("Project"). The Project site is located at the northeast of the intersection of Enterprise Way and Nisqualli Road in the City of Victorville. The Project is proposing to develop a truck and trailer parking/drop lot on 10.04-gross acres. This noise study has been prepared to satisfy applicable City of Victorville noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any identified mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Nisqualli Road Trailer Lot Expansion ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project is located northeast of the intersection of Enterprise Way and Nisqualli Road in the City of Victorville, as shown on Exhibit 1-A. The proposed Project is located approximately 8 miles southeast of Southern California Logistics Airport (SCLA).

1.2 PROJECT DESCRIPTION

The Project is proposing to develop a truck trailer parking/drop lot on 10.04-gross acres, as shown on Exhibit 1-B. The site currently accommodates 112 truck trailers in unmarked spaces. The development of the Project would result in a net increase of 86 truck trailer spaces on-site. The site is currently undeveloped and unimproved and will be developed as an expansion to an existing industrial building located on the northeast corner of Enterprise Way and Nisqualli Road.

The on-site Project-related operational noise sources are expected to include: tractor trailer parking activity, and truck movements. This report assumes the Project will operate 24-hours a day for seven days per week.

EXHIBIT 1-A: LOCATION MAP

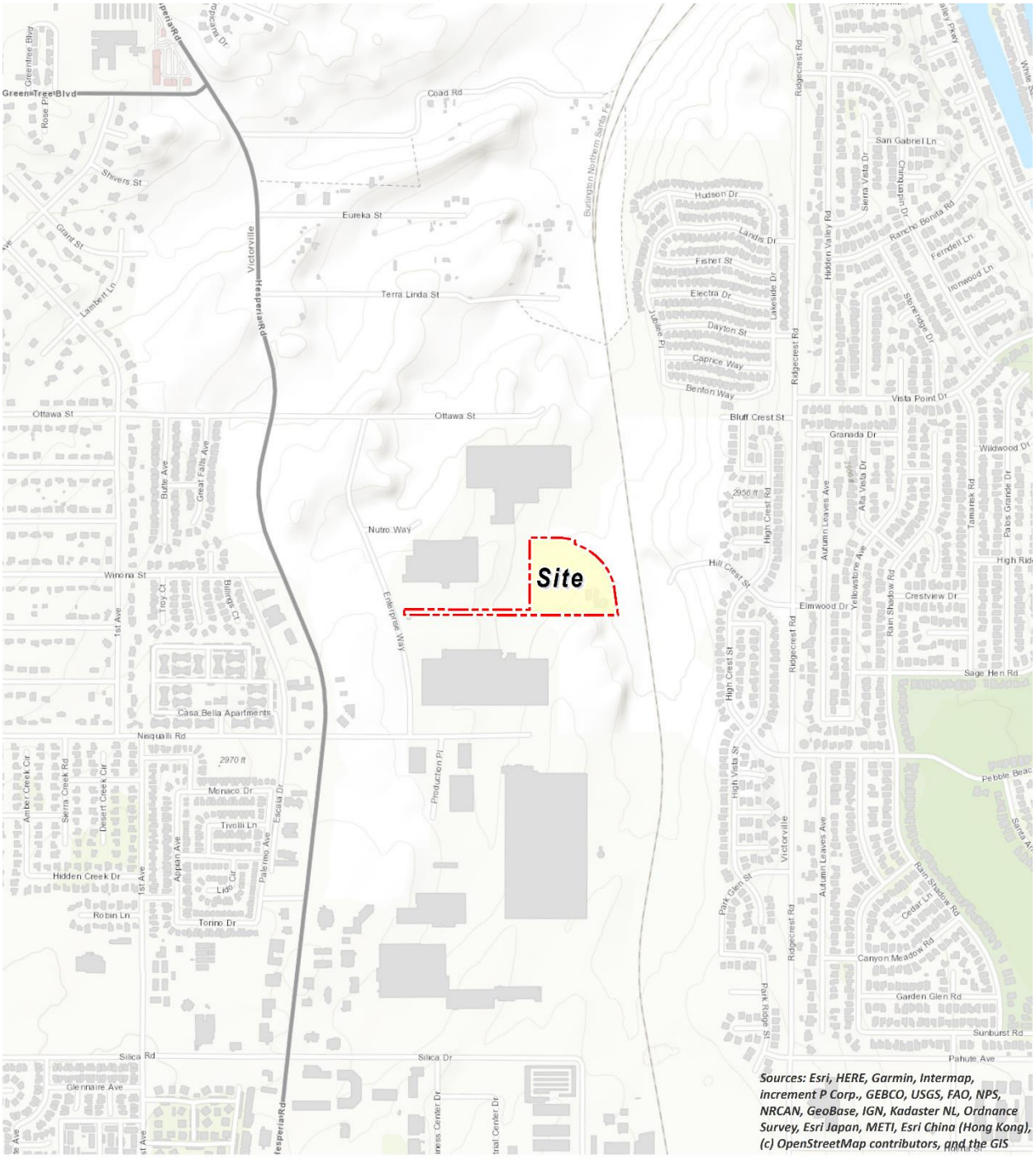
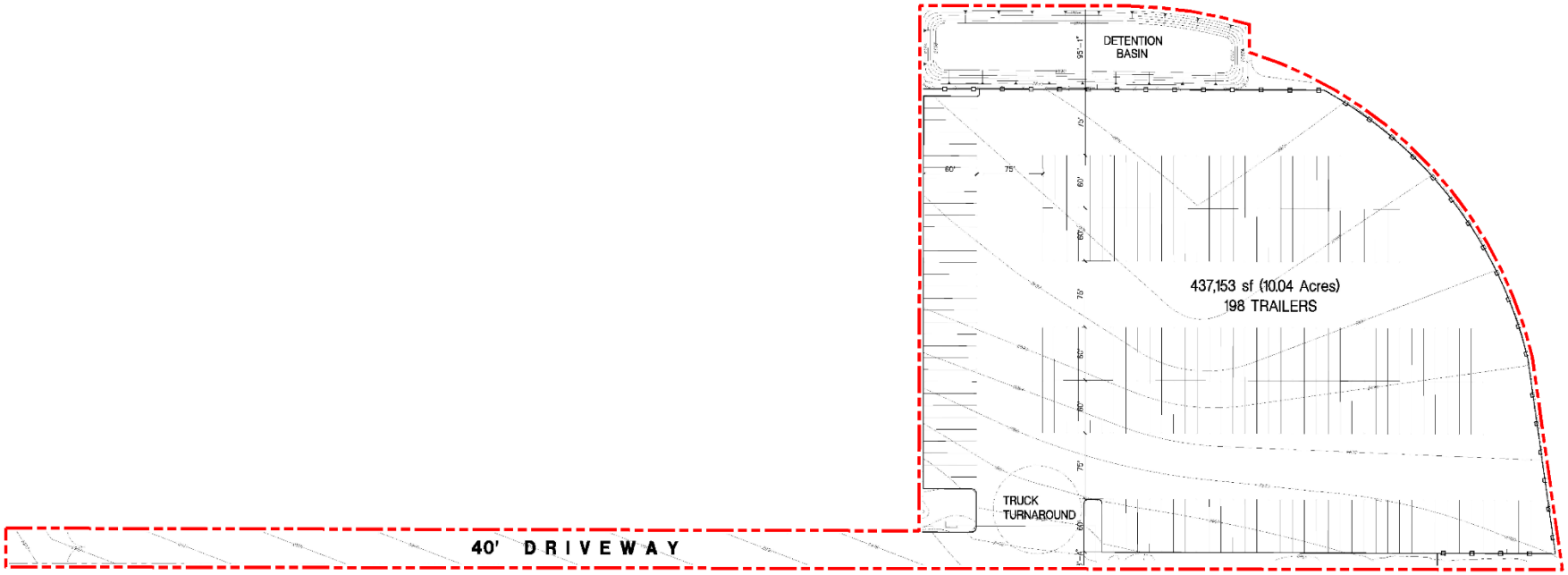


EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort (3). Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Victorville relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

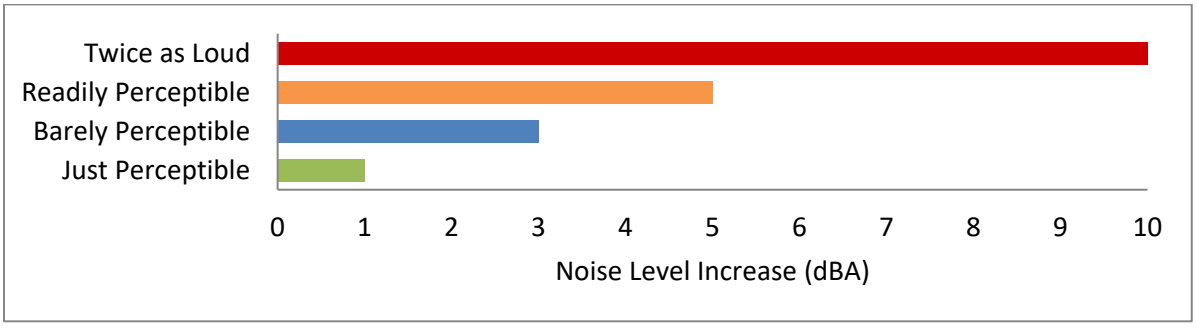
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (8). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (8). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structurers reduce vibration levels due to the coupling of the building to the soil.

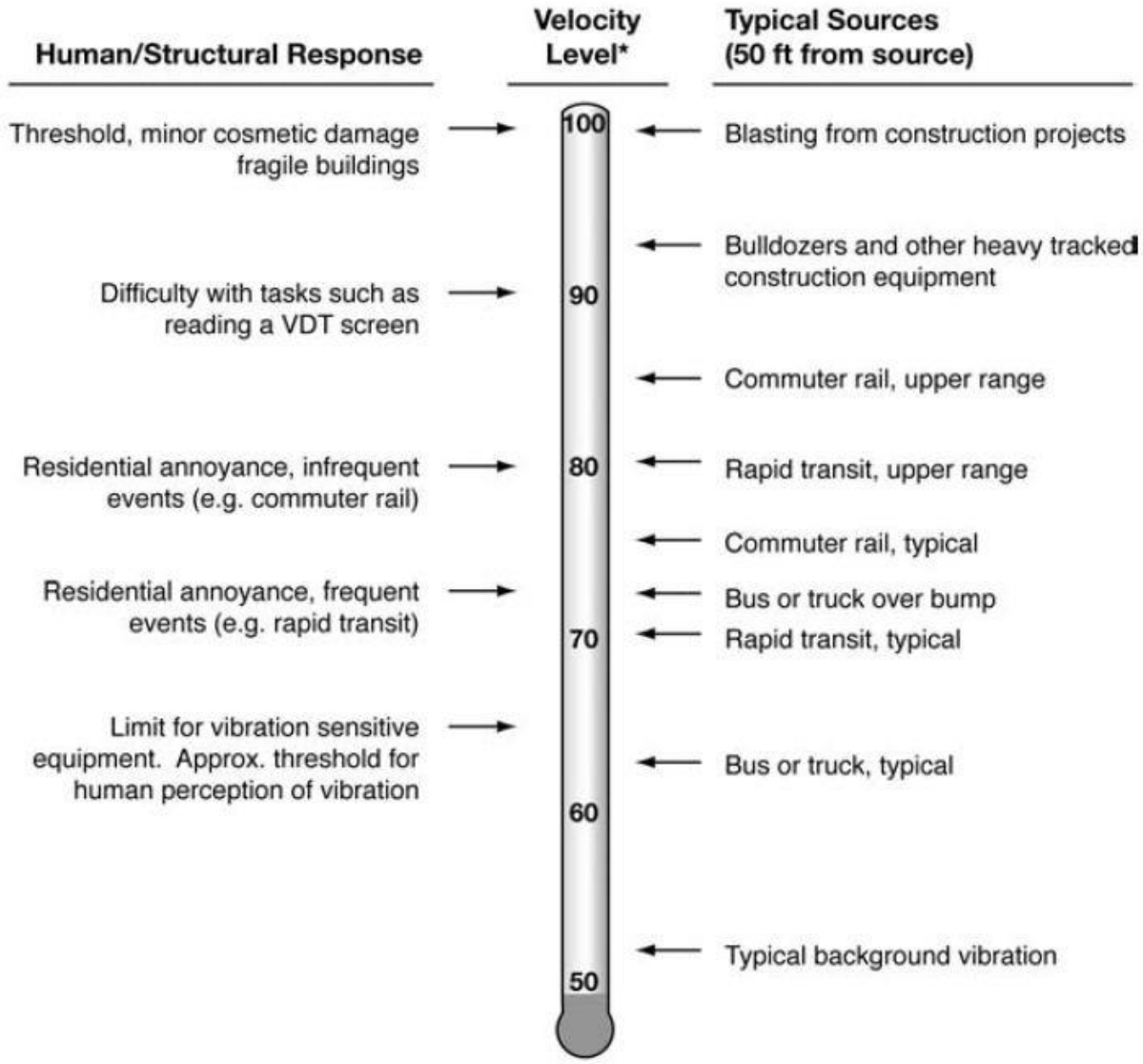
There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (8). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (9). Thus, either can be used in the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (8) Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, the background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity

level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) The purpose of the Noise and Safety Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF VICTORVILLE GENERAL PLAN NOISE ELEMENT

The City of Victorville *General Plan Noise Element* is *intended to limit exposure of the community to excessive noise levels*. (11) The City of Victorville *General Plan Noise Element* land use compatibility standards specify the noise levels allowable for new developments impacted by transportation noise sources. The *Victorville Land Use Compatibility Standards*, found on Table N-3 of the *General Plan,* identify the criteria as shown on Exhibit 3-A. For the noise sensitive residential land use, exterior noise levels of less than 65 dBA CNEL are considered *normally acceptable*, *conditionally acceptable* with exterior noise levels between 65 to 70 dBA CNEL, and *normally unacceptable* with exterior noise levels above 70 dBA CNEL. For non-residential land use, exterior noise levels of less than 70 dBA CNEL are generally considered as *normally acceptable*.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA

Table N-3
Victorville Land Use Compatibility Standards

	Community Noise Exposure Ldn or CNEL, dB						
Land Use Categories	55	60	65	70	75	80 +	
Residential - Low Density, Single Family, Duplex, Multi-family, Mobile Home	1	1	2	2	3	4	4
Transient Lodging - Motels, Hotels	1	1	2	2	3	3	4
Schools, Libraries, Churches, Hospitals, Nursing Homes	1	1	2	3	3	4	4
Auditoriums, Concert Halls, Amphitheaters	2	2	3	3	4	4	4
Sports Arena, Outdoor Spectator Sports	2	2	2	2	3	3	3
Playgrounds, Neighborhood Parks	1	1	1	2	3	3	3
Golf Courses, Riding Stables, Water Recreation, Cemeteries	1	1	1	2	2	4	4
Office Buildings, Business Commercial, Retail Commercial and Professional	1	1	1	2	2	3	3
Industrial, Manufacturing, Utilities	1	1	1	1	2	2	2
Agriculture	1	1	1	1	1	1	1

Legend:
1. NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
2. CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and Schools, Libraries, Churches, Hospitals, Nursing Homes 1 needed noise insulation features included in the design. Conventional construction, with closed windows and fresh air supply systems or air conditioning will normally suffice.
3. NORMALLY UNACCEPTABLE: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
4. CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Source: City of Victorville General Plan Noise Element, Table N-3.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Nisqualli Road Trailer Lot Expansion Project, stationary-source (operational) noise such as the expected tractor trailer parking activity, and truck movements are typically evaluated against standards established under a jurisdiction's municipal code.

Section 13.01.030 of the City of Victorville Municipal Code, establishes the noise level standards for stationary noise sources. For residential properties, the exterior noise level shall not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 55 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (12) For commercial uses, exterior noise levels shall not exceed 70 dBA L_{eq} at any time. For the industrial uses the exterior noise levels commercial uses shall not exceed 75 dBA L_{eq} at any time. The operational noise level standards are shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Land Use	Exterior Noise Levels (dBA L_{eq})[2]	
	Daytime (7am-10pm)	Nighttime (10pm-7am)
Residential	65	55
Commercial	70	
Industrial	75	

[1] City of Victorville Municipal Code, Section 13.01.030 (Appendix 3.1).

[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given period.

3.4 CONSTRUCTION NOISE STANDARDS

Section 13.01.060.9 of the City of Victorville Municipal Code, provided in Appendix 3.1, indicates that construction activity is considered exempt from the noise level standards on private properties that are determined by the director of building and safety to be essential to the completion of a project. However, neither the City of Victorville General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq}. (8 p. 179)

3.5 CONSTRUCTION VIBRATION STANDARDS

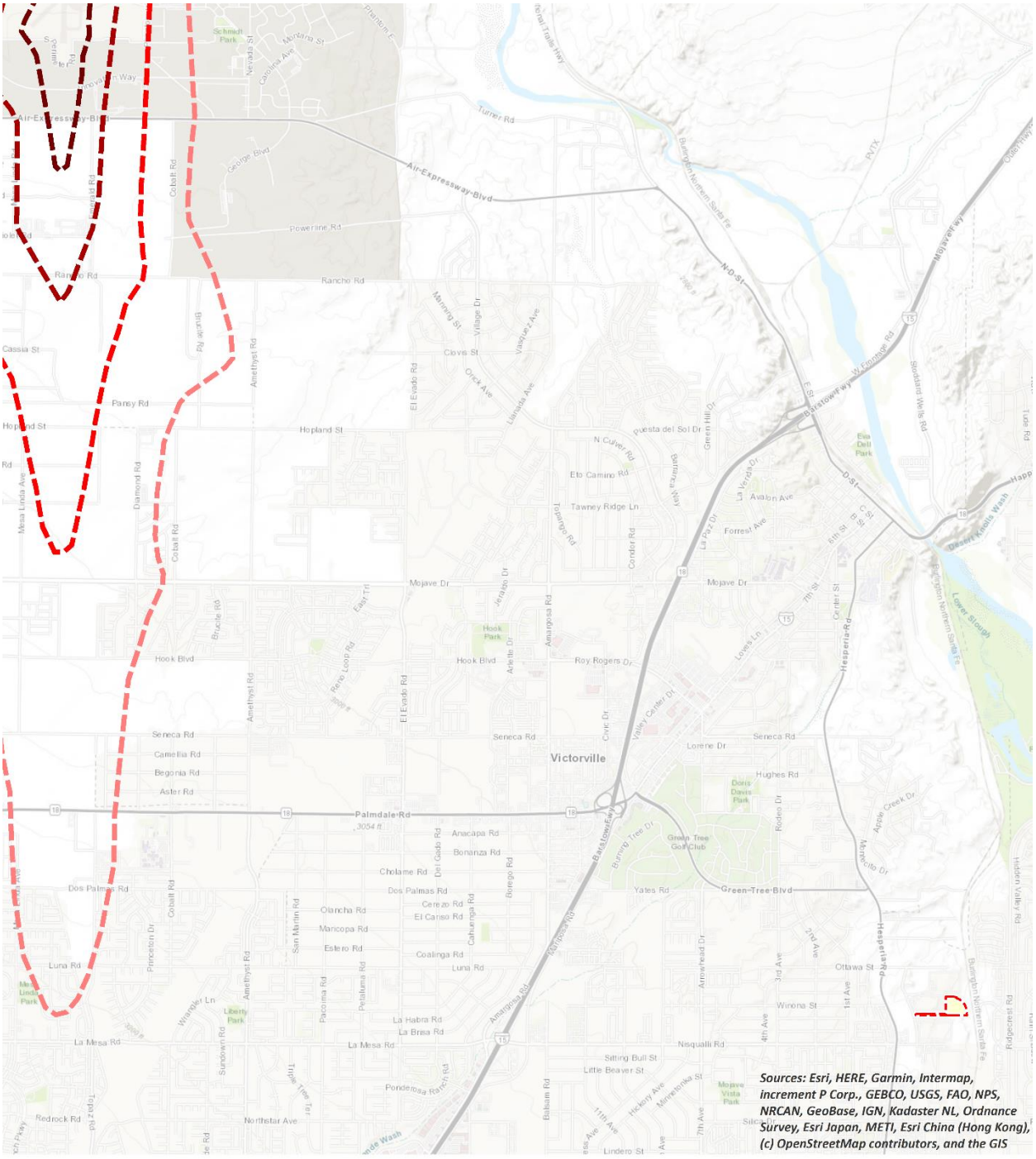
Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8) To analyze vibration impacts originating from the operation and construction of the Nisqualli Road Trailer Lot Expansion, vibration-generating activities are appropriately evaluated against standards established under a City of Victorville's Municipal Code, if such standards exist. However, the City of Victorville does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (9 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The

nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.6 SOUTHERN CALIFORNIA LOGISTICS AIRPORT LAND USE COMPATIBILITY

The closest airport to the Project site is the Southern California Logistics Airport (SCLA) located approximately 8 miles to the northwest with the potential to expose the Project site to aircraft-related exterior noise levels. Therefore, the *Southern California Logistics Airport Comprehensive Land Use Plan* future noise level contour boundaries are used in this noise study to determine the land use compatibility of the Project. (13) Exhibit 3-A shows that the Project site is not located within the future SCLA 65 dBA CNEL noise level contour boundary. Based on the *Land Use Compatibility Standards (Table 3A)* described on Page 3-13 of the *SCLA Comprehensive Land Use Plan,* the Project's warehouse land use is considered a *normally acceptable* land use. (13) Therefore, since the Project site falls within the *normally acceptable* 65 dBA CNEL contour boundaries of SCLA, no further analysis is required.

EXHIBIT 3-A: SCLA FUTURE AIRPORT NOISE CONTOURS



LEGEND:

N

Site Boundary | 75 dBA CNEL | 70 dBA CNEL | 65 dBA CNEL | 60 dBA CNEL

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders a noise impact significant.* (14) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (15) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (14) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels

range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (16 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The City of Victorville General Plan Noise Element, Table N-3, *Land Use Noise Compatibility Standards* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive land use is 70 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Victorville *Land Use Compatibility Standards*.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.6, the vibration impacts originating from the construction of the Nisqualli Road Trailer Lot Expansion, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

The Project site is not located within two miles of a public airport or within an airport land use plan. The closest airport is the SCLA located approximately 8 miles northwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to CEQA Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[2]	If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	Exterior Noise Level Standards[3]	See Table 3-1	
		If ambient is < 60 dBA Leq[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA Leq[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA Leq[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Noise Level Threshold[4]	80 dBA L_{eq}	70 dBA L_{eq}
		Vibration Level Threshold[5]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] Victorville Land Use Compatibility Standards (General Plan Table N-3) for non-residential land use.
[3] City of Victorville Municipal Code, Section 13.01.030 (Appendix 3.1).
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[5] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Thursday, May 18, 2023. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the hourly energy average sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

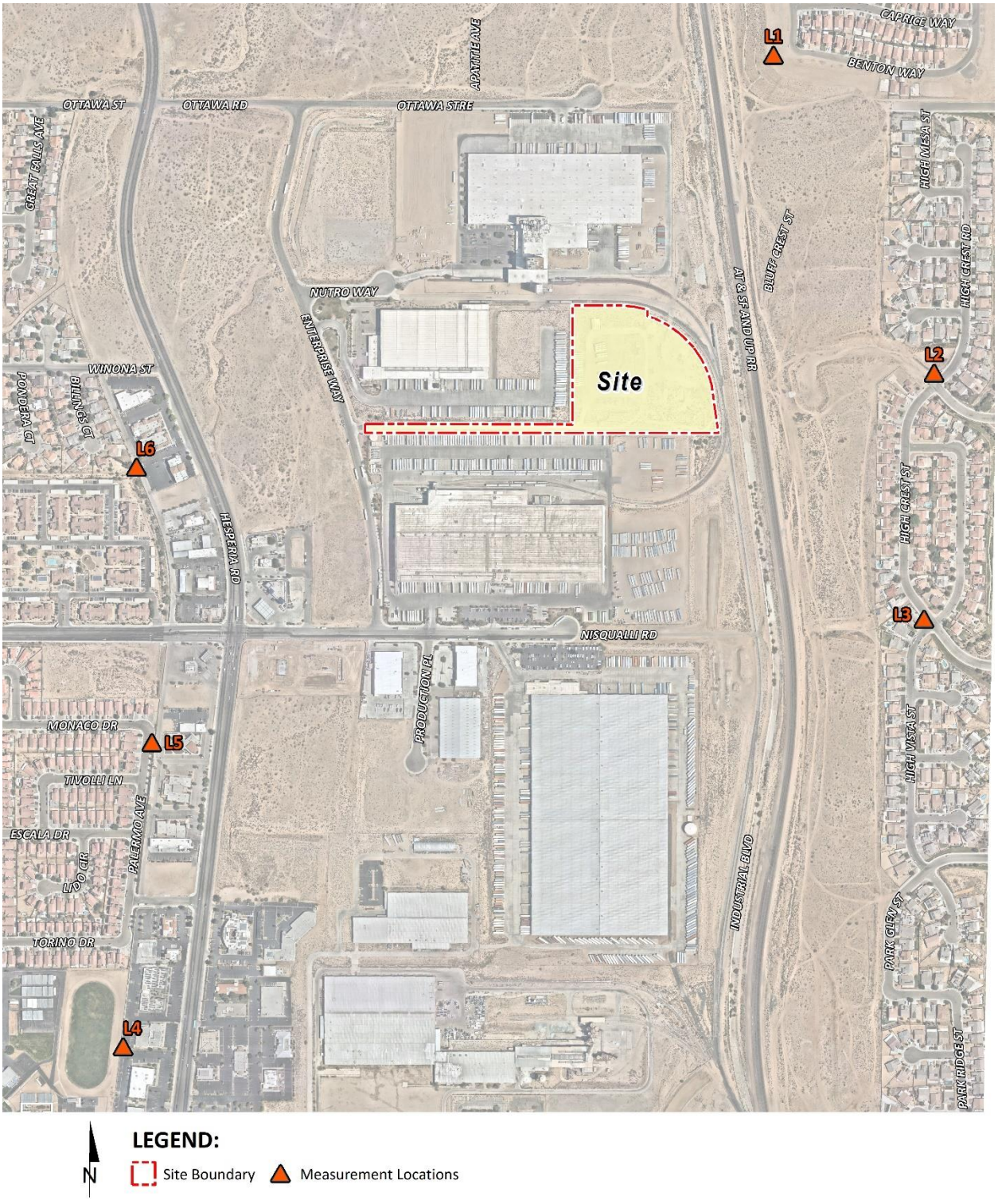
TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located northeast of the site near the residence at 17540 Benton Way	60.2	62.6	69.0
L2	Located east of the site near the residence at 13104 High Crest St.	60.1	54.3	62.4
L3	Located southeast of the site near the residence at 12922 High Vista St.	55.1	51.9	59.3
L4	Located southwest of the site near the residence at 17047 Torino Dr.	56.6	54.2	61.4
L5	Located southwest of the site near the residence at 17066 Monaco Dr.	55.2	52.7	59.9
L6	Located west of the site near the retail building at 13010 Hesperia Rd.	58.4	54.3	61.9

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the equivalent noise levels used to describe the daytime and nighttime ambient conditions and the calculated 24-hour CNEL. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each of the daytime and nighttime hours.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future transportation related noise environment. Consistent with the City of Victorville *Land Use Compatibility Standards* guidelines outline on Exhibit 3-A, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (20)

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 8 off-site study area roadway segments, the distance from the centerline to adjacent receiving land use based on the functional roadway classifications per the City of Victorville General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 are based on the *Nisqualli Road Trailer Lot Expansion Traffic Analysis* prepared by Urban Crossroads, Inc. (21) for the following traffic conditions:

1. Existing Without Project
2. Existing With Project (E+P)
3. Opening Year Cumulative (2024) Without Project
4. Opening Year Cumulative (2024) With Project
5. Horizon Year (2033) Without Project
6. Horizon Year (2033) With Project

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes from the Project traffic analysis. The

Project is anticipated to generate a total of 184 net new two-way trips per day (actual vehicles) that includes 114 truck trips.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Hesperia Rd.	n/o Ottawa St.	Super Arterial	Non-Sensitive	62'	50
2	Hesperia Rd.	s/o Ottawa St.	Super Arterial	Sensitive	62'	50
3	Hesperia Rd.	s/o Nisqualli Rd.	Super Arterial	Non-Sensitive	62'	50
4	Enterprise St.	n/o Nisqualli Rd.	Collector	Non-Sensitive	32'	40
5	Ottawa St.	w/o Hesperia Rd.	Collector	Sensitive	32'	40
6	Ottawa St.	e/o Hesperia Rd.	Collector	Non-Sensitive	32'	40
7	Nisqualli Rd.	w/o Hesperia Rd.	Major Arterial	Sensitive	50'	45
8	Nisqualli Rd.	e/o Hesperia Rd.	Major Arterial	Non-Sensitive	50'	45

[1] Nisqualli Road Trailer Lot Expansion Traffic Analysis, Urban Crossroads, Inc.
[2] Based on a review of existing aerial imagery.
[3] Distance to receiving land use is based upon the right-of-way distances.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]					
			Existing		OYC (2024)		HY (2033)	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Hesperia Rd.	n/o Ottawa St.	35,091	35,112	37,108	37,129	44,091	44,112
2	Hesperia Rd.	s/o Ottawa St.	34,819	34,837	37,869	37,887	44,798	44,816
3	Hesperia Rd.	s/o Nisqualli Rd.	39,113	39,130	42,887	42,905	50,671	50,688
4	Enterprise St.	n/o Nisqualli Rd.	978	1,116	997	1,136	1,192	1,330
5	Ottawa St.	w/o Hesperia Rd.	561	584	656	679	768	791
6	Ottawa St.	e/o Hesperia Rd.	579	586	2,717	2,724	2,832	2,839
7	Nisqualli Rd.	w/o Hesperia Rd.	17,346	17,488	22,567	22,709	26,019	26,161
8	Nisqualli Rd.	e/o Hesperia Rd.	3,227	3,404	8,724	8,901	9,366	9,543

[1] Nisqualli Road Trailer Lot Expansion Traffic Analysis, Urban Crossroads, Inc.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Nisqualli*

Road Trailer Lot Expansion Traffic Analysis. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-7 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	80.92%	9.50%	9.58%	100.00%
Medium Trucks	84.62%	2.80%	12.59%	100.00%
Heavy Trucks	82.37%	4.28%	13.34%	100.00%

[1] Based on the March 16, 2023, daily directional vehicle classification count collected on Hesperia Road south of Nisqualli Road (Nisqualli Road Trailer Lot Expansion Traffic Analysis, Urban Crossroads, Inc.)
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Classification	Total % Traffic Flow[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	97.72%	0.73%	1.55%	100.00%

[1] Based on the March 16, 2023, daily directional vehicle classification count collected on Hesperia Road south of Nisqualli Road (Nisqualli Road Trailer Lot Expansion Traffic Analysis, Urban Crossroads, Inc.)

TABLE 6-5: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Hesperia Rd.	n/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
2	Hesperia Rd.	s/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
3	Hesperia Rd.	s/o Nisqualli Rd.	97.72%	0.73%	1.55%	100.00%
4	Enterprise St.	n/o Nisqualli Rd.	87.79%	1.46%	10.76%	100.00%
5	Ottawa St.	w/o Hesperia Rd.	95.37%	0.90%	3.73%	100.00%
6	Ottawa St.	e/o Hesperia Rd.	97.74%	0.72%	1.53%	100.00%
7	Nisqualli Rd.	w/o Hesperia Rd.	97.08%	0.78%	2.14%	100.00%
8	Nisqualli Rd.	e/o Hesperia Rd.	94.49%	0.96%	4.55%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: OYC 2024 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Hesperia Rd.	n/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
2	Hesperia Rd.	s/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
3	Hesperia Rd.	s/o Nisqualli Rd.	97.72%	0.73%	1.55%	100.00%
4	Enterprise St.	n/o Nisqualli Rd.	87.96%	1.44%	10.60%	100.00%
5	Ottawa St.	w/o Hesperia Rd.	95.70%	0.87%	3.43%	100.00%
6	Ottawa St.	e/o Hesperia Rd.	97.72%	0.73%	1.55%	100.00%
7	Nisqualli Rd.	w/o Hesperia Rd.	97.23%	0.77%	2.00%	100.00%
8	Nisqualli Rd.	e/o Hesperia Rd.	96.48%	0.82%	2.70%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: HY 2045 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Hesperia Rd.	n/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
2	Hesperia Rd.	s/o Ottawa St.	97.72%	0.73%	1.55%	100.00%
3	Hesperia Rd.	s/o Nisqualli Rd.	97.72%	0.73%	1.55%	100.00%
4	Enterprise St.	n/o Nisqualli Rd.	89.38%	1.34%	9.28%	100.00%
5	Ottawa St.	w/o Hesperia Rd.	95.98%	0.85%	3.16%	100.00%
6	Ottawa St.	e/o Hesperia Rd.	97.72%	0.73%	1.55%	100.00%
7	Nisqualli Rd.	w/o Hesperia Rd.	97.29%	0.76%	1.94%	100.00%
8	Nisqualli Rd.	e/o Hesperia Rd.	96.56%	0.81%	2.62%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *the Nisqualli Road Trailer Lot Expansion Traffic Analysis* prepared by Urban Crossroads, Inc. (21) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at receiving land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the eight study area roadway segments analyzed under each traffic condition. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Hesperia Rd.	n/o Ottawa St.	Non-Sensitive	73.5	56	122	262
2	Hesperia Rd.	s/o Ottawa St.	Sensitive	73.4	RW	111	240
3	Hesperia Rd.	s/o Nisqualli Rd.	Non-Sensitive	73.9	RW	75	161
4	Enterprise St.	n/o Nisqualli Rd.	Non-Sensitive	59.9	75	162	350
5	Ottawa St.	w/o Hesperia Rd.	Sensitive	57.5	75	161	347
6	Ottawa St.	e/o Hesperia Rd.	Non-Sensitive	57.6	170	367	790
7	Nisqualli Rd.	w/o Hesperia Rd.	Sensitive	70.3	166	358	770
8	Nisqualli Rd.	e/o Hesperia Rd.	Non-Sensitive	63.0	166	358	771

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Clark St.	n/o Cajalco Rd.	Non-Sensitive	73.5	106	227	490
2	Clark St.	s/o Cajalco Rd.	Sensitive	73.4	105	226	487
3	Seaton Av.	n/o Cajalco Rd.	Non-Sensitive	73.9	113	244	527
4	Seaton Av.	s/o Cajalco Rd.	Non-Sensitive	65.9	RW	RW	79
5	Seaton Av.	n/o Rider St.	Sensitive	59.6	RW	RW	RW
6	Harvill Av.	n/o Cajalco Rd.	Non-Sensitive	57.6	RW	RW	RW
7	Harvill Av.	s/o Cajalco Rd.	Sensitive	71.0	RW	125	269
8	Cajalco Rd.	w/o Clark St.	Non-Sensitive	65.7	RW	RW	119

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: OPENING YEAR CUMULATIVE (2024) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Clark St.	n/o Cajalco Rd.	Non-Sensitive	73.7	110	236	508
2	Clark St.	s/o Cajalco Rd.	Sensitive	73.8	111	239	515
3	Seaton Av.	n/o Cajalco Rd.	Non-Sensitive	74.3	121	260	560
4	Seaton Av.	s/o Cajalco Rd.	Non-Sensitive	60.0	RW	RW	RW
5	Seaton Av.	n/o Rider St.	Sensitive	58.1	RW	RW	RW
6	Harvill Av.	n/o Cajalco Rd.	Non-Sensitive	64.3	RW	RW	62
7	Harvill Av.	s/o Cajalco Rd.	Sensitive	71.5	63	135	292
8	Cajalco Rd.	w/o Clark St.	Non-Sensitive	67.4	RW	RW	155

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Clark St.	n/o Cajalco Rd.	Non-Sensitive	73.7	110	236	509
2	Clark St.	s/o Cajalco Rd.	Sensitive	73.8	111	239	516
3	Seaton Av.	n/o Cajalco Rd.	Non-Sensitive	74.3	121	260	560
4	Seaton Av.	s/o Cajalco Rd.	Non-Sensitive	65.9	RW	RW	79
5	Seaton Av.	n/o Rider St.	Sensitive	60.1	RW	RW	RW
6	Harvill Av.	n/o Cajalco Rd.	Non-Sensitive	64.3	RW	RW	62
7	Harvill Av.	s/o Cajalco Rd.	Sensitive	72.0	68	146	314
8	Cajalco Rd.	w/o Clark St.	Non-Sensitive	68.5	RW	RW	185

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: HORIZON YEAR (2033) WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Clark St.	n/o Cajalco Rd.	Non-Sensitive	74.5	123	265	570
2	Clark St.	s/o Cajalco Rd.	Sensitive	74.5	124	268	577
3	Seaton Av.	n/o Cajalco Rd.	Non-Sensitive	75.1	135	290	626
4	Seaton Av.	s/o Cajalco Rd.	Non-Sensitive	60.7	RW	RW	RW
5	Seaton Av.	n/o Rider St.	Sensitive	58.8	RW	RW	RW
6	Harvill Av.	n/o Cajalco Rd.	Non-Sensitive	64.5	RW	RW	64
7	Harvill Av.	s/o Cajalco Rd.	Sensitive	72.1	69	149	321
8	Cajalco Rd.	w/o Clark St.	Non-Sensitive	67.7	RW	RW	162

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: HORIZON YEAR (2033) WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Clark St.	n/o Cajalco Rd.	Non-Sensitive	74.5	123	265	571
2	Clark St.	s/o Cajalco Rd.	Sensitive	74.5	124	268	577
3	Seaton Av.	n/o Cajalco Rd.	Non-Sensitive	75.1	135	291	626
4	Seaton Av.	s/o Cajalco Rd.	Non-Sensitive	66.1	RW	RW	82
5	Seaton Av.	n/o Rider St.	Sensitive	60.5	RW	RW	RW
6	Harvill Av.	n/o Cajalco Rd.	Non-Sensitive	64.5	RW	RW	64
7	Harvill Av.	s/o Cajalco Rd.	Sensitive	72.5	74	159	342
8	Cajalco Rd.	w/o Clark St.	Non-Sensitive	68.8	RW	RW	192

[1] Based on a review of existing aerial imagery.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Nisqualli Road Trailer Lot Expansion Traffic Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 57.5 to 73.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 57.6 to 73.9 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level impacts will range from less than 0.0 to 6.0 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

For an off-site traffic noise level impact to be considered significant, receivers need to perceive an increase of traffic noise levels over time. Therefore, consistent with guidance from the City of Victorville, off-site traffic impacts are limited to noise sensitive residential receivers that are likely to perceive this increase. While the analysis shows that the non-sensitive industrial uses will experience an off-site traffic noise level increase of up to 6.0 dBA CNEL, this is not considered a significant noise level impact since there are no adjacent receivers that will experience this increase over time. In addition, the Project-related off-site traffic noise level increase is largely due to the low traffic volumes that currently exist.

7.3 OPENING YEAR CUMULATIVE 2024 TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year Cumulative 2024 without Project conditions CNEL noise levels. The Background 2024 without Project exterior noise levels are expected to range from 58.1 to 74.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year Cumulative 2024 with Project conditions will range from 60.1 to 74.3 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases will range from less than 0.0 to 5.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.4 HORIZON YEAR 2033 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Horizon Year 2033 without Project conditions CNEL noise levels. The Future Year 2033 without Project exterior noise levels are expected to range from 58.8 to 75.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Horizon Year 2033 with Project conditions will range from 60.5 to 75.1 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases will range from less than 0.0 to 5.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-7: EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Hesperia Rd.	n/o Ottawa St.	Non-Sensitive	73.5	73.5	0.0	3.0	No
2	Hesperia Rd.	s/o Ottawa St.	Sensitive	73.4	73.4	0.0	1.5	No
3	Hesperia Rd.	s/o Nisqualli Rd.	Non-Sensitive	73.9	73.9	0.0	3.0	No
4	Enterprise St.	n/o Nisqualli Rd.	Non-Sensitive	59.9	65.9	6.0	n/a	No
5	Ottawa St.	w/o Hesperia Rd.	Sensitive	57.5	59.6	2.1	5.0	No
6	Ottawa St.	e/o Hesperia Rd.	Non-Sensitive	57.6	57.6	0.0	n/a	No
7	Nisqualli Rd.	w/o Hesperia Rd.	Sensitive	70.3	71.0	0.7	1.5	No
8	Nisqualli Rd.	e/o Hesperia Rd.	Non-Sensitive	63.0	65.7	2.7	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a" Per the City of Victorville General Plan Noise Element Table N-3, unmitigated normally acceptable exterior noise levels of less than 70 dBA CNEL are considered less than significant and a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the non-noise sensitive noise level is greater than the normally acceptable 70 dBA CNEL land use compatibility criteria.

TABLE 7-8: OPENING YEAR CUMULATIVE (2024) TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Hesperia Rd.	n/o Ottawa St.	Non-Sensitive	73.7	73.7	0.0	3.0	No
2	Hesperia Rd.	s/o Ottawa St.	Sensitive	73.8	73.8	0.0	1.5	No
3	Hesperia Rd.	s/o Nisqualli Rd.	Non-Sensitive	74.3	74.3	0.0	3.0	No
4	Enterprise St.	n/o Nisqualli Rd.	Non-Sensitive	60.0	65.9	5.9	n/a	No
5	Ottawa St.	w/o Hesperia Rd.	Sensitive	58.1	60.1	2.0	5.0	No
6	Ottawa St.	e/o Hesperia Rd.	Non-Sensitive	64.3	64.3	0.0	n/a	No
7	Nisqualli Rd.	w/o Hesperia Rd.	Sensitive	71.5	72.0	0.5	1.5	No
8	Nisqualli Rd.	e/o Hesperia Rd.	Non-Sensitive	67.4	68.5	1.1	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a" Per the City of Victorville General Plan Noise Element Table N-3, unmitigated normally acceptable exterior noise levels of less than 70 dBA CNEL are considered less than significant and a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the non-noise sensitive noise level is greater than the normally acceptable 70 dBA CNEL land use compatibility criteria.

TABLE 7-9: HORIZON YEAR 2033 PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Hesperia Rd.	n/o Ottawa St.	Non-Sensitive	74.5	74.5	0.0	3.0	No
2	Hesperia Rd.	s/o Ottawa St.	Sensitive	74.5	74.5	0.0	1.5	No
3	Hesperia Rd.	s/o Nisqualli Rd.	Non-Sensitive	75.1	75.1	0.0	3.0	No
4	Enterprise St.	n/o Nisqualli Rd.	Non-Sensitive	60.7	66.1	5.4	n/a	No
5	Ottawa St.	w/o Hesperia Rd.	Sensitive	58.8	60.5	1.7	5.0	No
6	Ottawa St.	e/o Hesperia Rd.	Non-Sensitive	64.5	64.5	0.0	n/a	No
7	Nisqualli Rd.	w/o Hesperia Rd.	Sensitive	72.1	72.5	0.4	1.5	No
8	Nisqualli Rd.	e/o Hesperia Rd.	Non-Sensitive	67.7	68.8	1.1	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a" Per the City of Victorville General Plan Noise Element Table N-3, unmitigated normally acceptable exterior noise levels of less than 70 dBA CNEL are considered less than significant and a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the non-noise sensitive noise level is greater than the normally acceptable 70 dBA CNEL land use compatibility criteria.

8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. While a receptor represents an existing noise sensitive area, a receiver represents a single point in a noise prediction model that can represent one receptor or multiple receptors. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, six receiver locations in the vicinity of the Project site were identified. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Due to the additional attenuation from distance and the shielding of intervening structures, other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

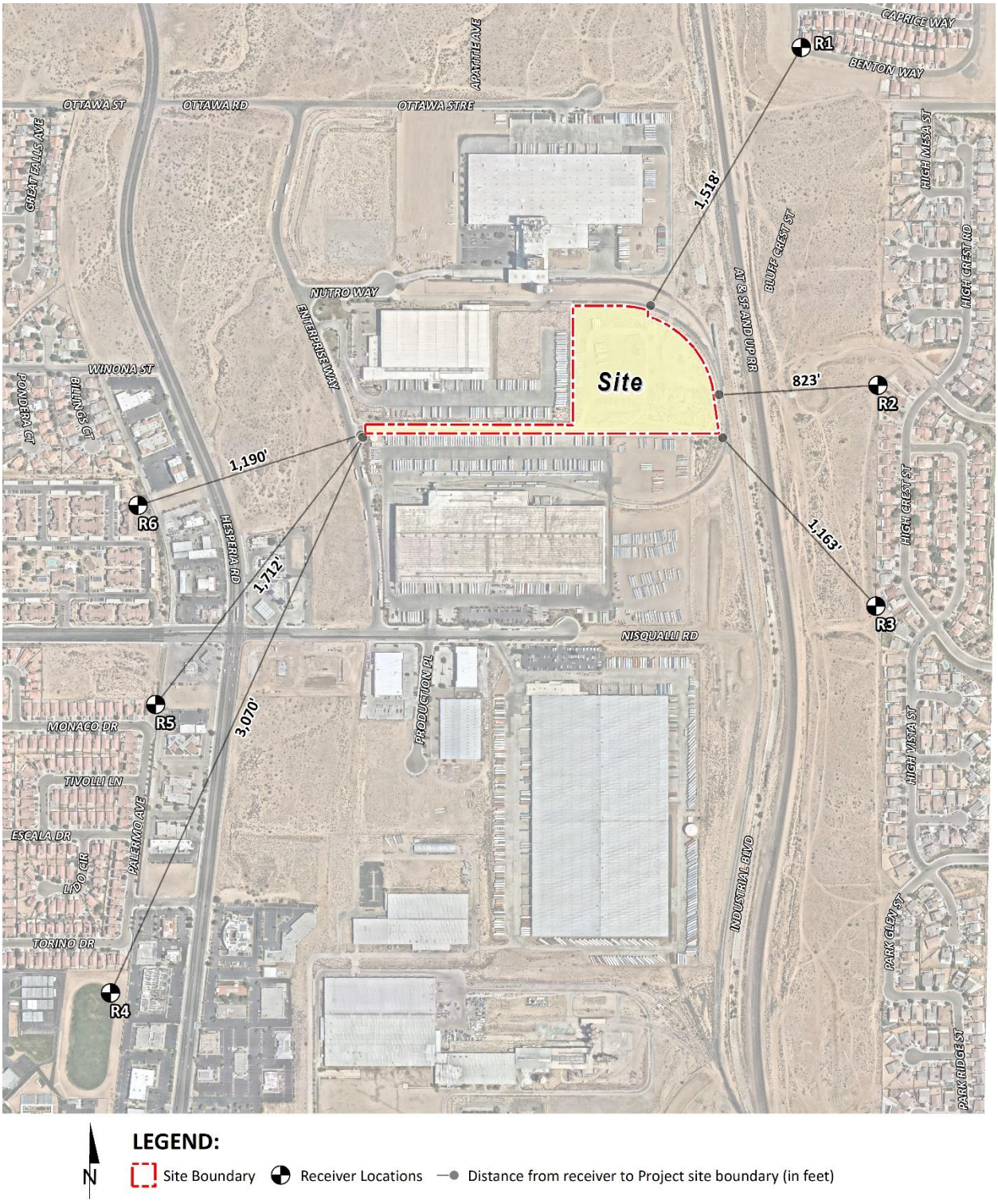
R1: Location R1 represents the existing noise sensitive residence at 17540 Benton Way, approximately 1,518 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 13094 High Crest Street, approximately 823 feet east of the Project site. Receiver R2 is placed in the private outdoor living areas (backyard) facing the project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 12950 High Crest Street, approximately 1,163 feet southeast of the Project site. R3 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the Lomitas Elementary School at 12571 1st Avenue, approximately 3,070 feet southwest of the Project site. R4 is placed near the outdoor track facing the Project site. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS



R5: Location R5 represents the existing noise sensitive residence at 17066 Monaco Drive, approximately 1,712 feet southwest of the Project site. R5 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing noise sensitive residence at 16980 Nisqualli Road, approximately 1,190 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R6 is placed at the building façade. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

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9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the typical daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: tractor trailer parking activity, and truck movements.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the tractor trailer parking activity, and truck movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

9.2.2 TRACTOR TRAILER PARKING ACTIVITY

To evaluate the noise levels associated with truck idling, backup alarms, trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility to describe the potential operational noise levels associated with Project operational activities. The measured reference noise level at 50 feet from activity was measured at 62.8 dBA L_{eq}. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events. Tractor trailer activity is estimated during all the daytime, evening, and nighttime hours.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

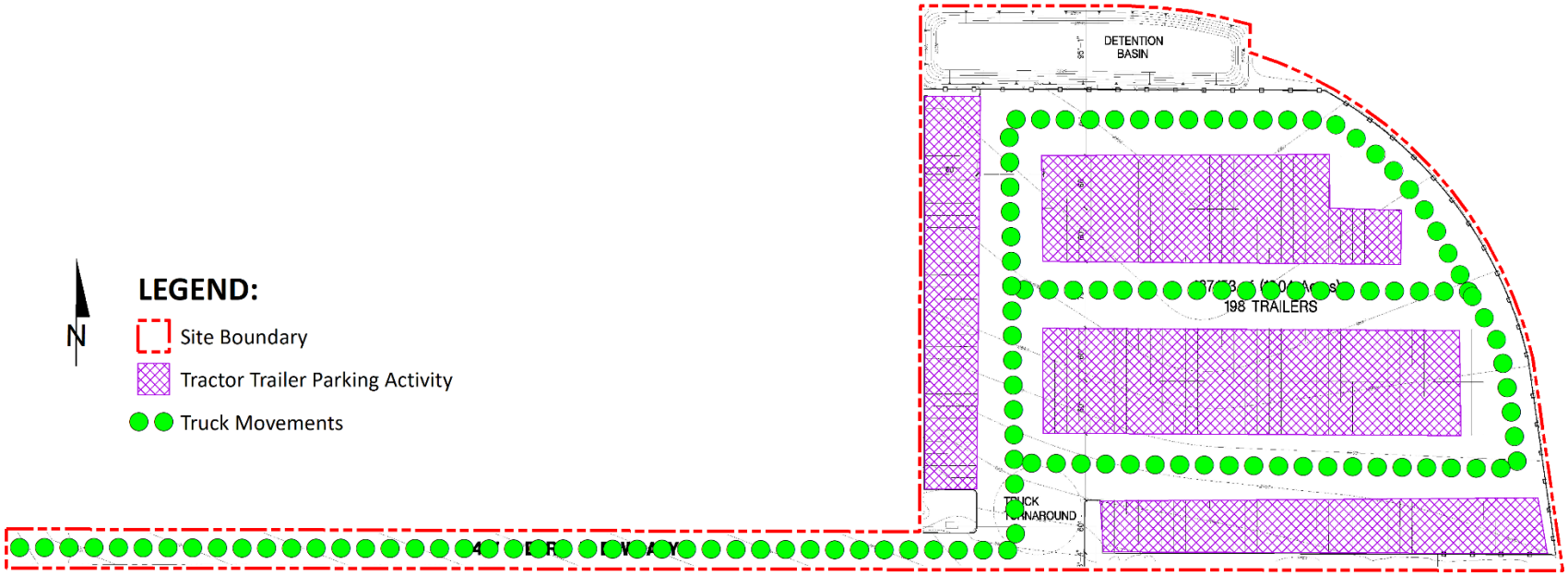


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Reference Noise Source	Noise Source Height (Feet)	Min./ Hour[1]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[2]
		Day	Night		
Tractor Trailer Parking Activity	8'	60	60	62.8	103.4
Truck Movements	8'	60	60	59.8	93.2

[1] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

[2] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

9.2.3 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represent multiple heavy trucks entering and existing the outdoor loading dock area producing a reference noise level of 59.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground

representing a combination of hard and soft surfaces. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include tractor trailer parking activity, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 9-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 34.5 to 47.8 dBA L_{eq}.

TABLE 9-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Tractor Trailer Parking Activity	42.0	47.6	45.0	34.3	37.9	39.1
Truck Movements	28.7	34.1	31.3	21.4	25.2	26.8
Total (All Noise Sources)	**42.2**	**47.8**	**45.2**	**34.5**	**38.1**	**39.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Table 9-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 34.5 to 47.8 dBA L_{eq}. The minor differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 9-1 and Appendix 9.1.

TABLE 9-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Tractor Trailer Parking Activity	42.0	47.6	45.0	34.3	37.9	39.1
Truck Movements	28.7	34.1	31.3	21.4	25.2	26.8
Total (All Noise Sources)	**42.2**	**47.8**	**45.2**	**34.5**	**38.1**	**39.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the exterior noise level thresholds adjusted to reflect the ambient noise levels at the nearest noise-sensitive receiver locations. Table 9-4 shows the operational noise levels associated with Nisqualli Road Trailer Lot Expansion Project will not exceed the daytime

and nighttime exterior noise level standards. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	42.2	42.2	65	55	No	No
R2	47.8	47.8	65	55	No	No
R3	45.2	45.2	65	55	No	No
R4	34.5	34.5	65	55	No	No
R5	38.1	38.1	65	55	No	No
R6	39.3	39.3	65	55	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project unmitigated operational noise levels as shown on Tables 9-2 and 9-3.
[3] Exterior noise level standards, as shown on Table 4-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations that may be potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

where “SPL1,” “SPL2,” etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-5 and 9-6, respectively. As indicated on Table 9-5, the Project will generate a daytime operational noise level increase ranging from 0.0 to 0.4 dBA L_{eq} at the nearest receiver locations. Table 9-6 shows that the Project will generate a nighttime operational noise level increase ranging from 0.0 to 0.9 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases would not exceed the operational noise level increase significance criteria presented in Table 4-1. Therefore, Project related operational noise level increases at the sensitive receiver locations will be *less than significant.*

TABLE 9-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	42.2	L1	60.2	60.3	0.1	5.0	No
R2	47.8	L2	60.1	60.3	0.2	5.0	No
R3	45.2	L3	55.1	55.5	0.4	5.0	No
R4	34.5	L4	56.6	56.6	0.0	5.0	No
R5	38.1	L5	55.2	55.3	0.1	5.0	No
R6	39.3	L6	58.4	58.5	0.1	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 9-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	42.2	L1	62.6	62.6	0.0	5.0	No
R2	47.8	L2	54.3	55.2	0.9	5.0	No
R3	45.2	L3	51.9	52.7	0.8	5.0	No
R4	34.5	L4	54.2	54.2	0.0	5.0	No
R5	38.1	L5	52.7	52.8	0.1	5.0	No
R6	39.3	L6	54.3	54.4	0.1	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8.

Section 13.01.060.9 of the City of Victorville Municipal Code, provided in Appendix 3.1, indicates that construction activity is considered exempt from the noise level standards on private properties that are determined by the director of building and safety to be essential to the completion of a project. However, neither the City of Victorville General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

10.1 CONSTRUCTION NOISE LEVELS

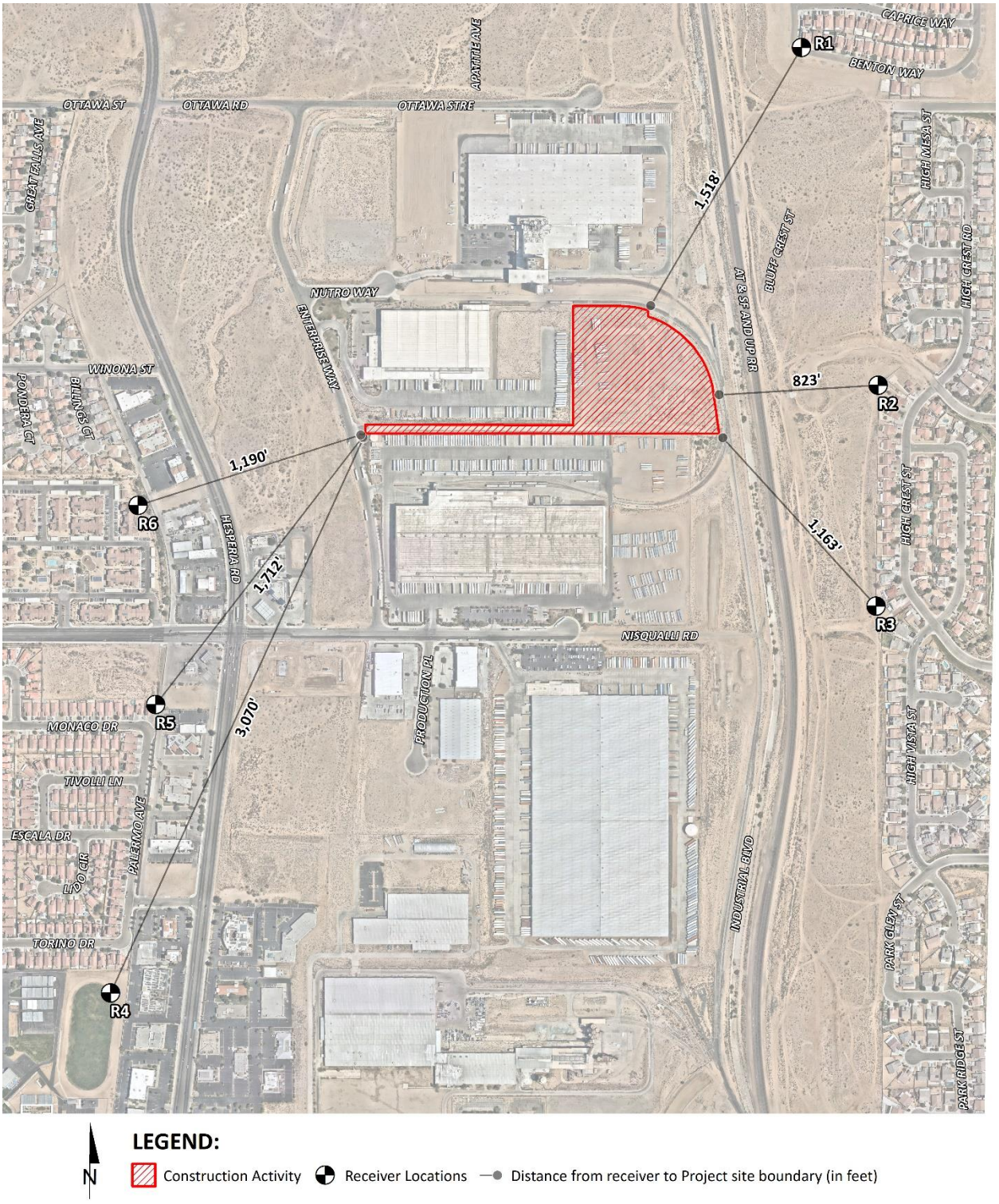
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (22) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



LEGEND:

N

Construction Activity | Receiver Locations | Distance from receiver to Project site boundary (in feet)

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipmnet[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Composite Reference Noise Level (dBA L_{eq})[2]	Reference Power Level (dBA L_w)[3]
Site Preparation	Tractor	80	84.0	115.6
	Backhoe	74		
	Grader	81		
Grading	Scraper	80	83.3	114.9
	Excavator	77		
	Dozer	78		
Building Construction	Crane	73	80.6	112.2
	Generator	78		
	Front End Loader	75		
Paving	Paver	74	77.8	109.5
	Dump Truck	72		
	Roller	73		
Architectural Coating	Man Lift	68	76.2	107.8
	Compressor (air)	74		
	Generator (<25kVA)	70		

[1] FHWA Road Construction Noise Model.
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings.

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time. To account for the dynamic nature of construction activities, the Project construction noise analysis models the equipment as multiple moving points within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 10-2, the maximum construction noise levels are expected to range from 40.7 to 53.7 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	48.2	47.5	44.8	42.1	40.4	48.2
R2	53.7	53.0	50.3	47.6	45.9	53.7
R3	50.8	50.1	47.4	44.7	43.0	50.8
R4	40.7	40.0	37.3	34.6	32.9	40.7
R5	44.4	43.7	41.0	38.3	36.6	44.4
R6	45.8	45.1	42.4	39.7	38.0	45.8

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project would generate potentially significant short-term noise levels at the nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will not exceed the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	48.2	80	No
R2	53.7	80	No
R3	50.8	80	No
R4	40.7	80	No
R5	44.4	80	No
R6	45.8	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by Caltrans. To calculate the vibration of equipment at distance Caltrans provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 823 to 3,070 feet from Project construction activities, construction vibration velocity levels are estimated to be less than 0.00 PPV (in/sec). Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the typical Project construction vibration levels will fall below the thresholds at all the sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

TABLE 10-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	1,518'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R2	823'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R3	1,163'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R4	3,070'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R5	1,712'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R6	1,190'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No

[1] Construction noise source and receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
9. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
10. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2019.
11. **City of Victorville.** *General Plan Noise Element.* 2008.
12. —. *Municipal Code, Section 13.01.030.*
13. **County of San Bernardino.** *Southern California Logistics Airport Comprehensive Land Use Plan.* September 2008.
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
17. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
18. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
19. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
20. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

21. **Urban Crossroads, Inc.** *Nisqualli Road Trailer Lot Expansion Traffic Analysis.* November 2023.

22. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Nisqualli Road Trailer Lot Expansion Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

Bill Lawson, P.E., INCE
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Newport Beach, CA 92658
(949) 581-3148
blawson@urbanxroads.com

EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF VICTORVILLE MUNICIPAL CODE

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Chapter 13.01 - NOISE CONTROL

Sections:

13.01.010 - Purpose and intent.

(a) The purpose of this chapter is to establish criteria and standards for the regulation of noise levels within the city of Victorville.

(b) The city council declares and finds that excessive noise levels are detrimental to the public health, welfare and safety and contrary to the public interest. It is the intent of this chapter to protect persons from excessive levels of noise from sources including, but not limited to; persons, animals, or fowl; automobiles, motorcycles, engines, machines, or other mechanical devices; loudspeakers, musical instruments, radios, televisions, phonographs, or other amplifying devices.

(c) This chapter includes standards for the measurement of noise levels to ensure that noise levels do not disturb and interfere with the peace, comfort or repose of the residents of the neighborhood from which the noise is emitted.

(Ord. 1962 § 2 (part), 2002)

13.01.020 - Definitions.

The following words, phrases, and terms as used in this chapter shall have the following meanings:

(1) "A-weighted sound level" means the sound pressure level in decibels as measured on a sound level meter using A-weighting network. The level to read is designated db(A) or dB(A).

(2) "Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding any intrusive noise.

(3) "Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

(4) "Decibel" means a unit of measure of sound level noise.

(5) "Noise level" means the same as "sound level" and the terms may be used interchangeably herein.

(6) "Sound level" (noise level) in decibels is the quantity measured using the frequency weighting of A of a sound level meter as defined herein.

(7) "Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 for type 1 or type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

(Ord. 1962 § 2 (part), 2002)

13.01.030 - Noise measurement criteria.

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in this chapter. The location selected for measuring exterior noise levels shall be at any point on the property line of the offender or anywhere on the affected property.

(Ord. 1962 § 2 (part), 2002)

13.01.040 - Base ambient noise levels.

All ambient noise measurements shall commence in decibels within the respective zones and times as follows:

Zone	Time	Sound Level Decibels
All residential zones	10:00pm to 7:00am	55 dB(A)
	7:00am to 10:00pm	65 dB(A)
All commercial zones	Anytime	70 dB(A)
All industrial zones	Anytime	75 dB(A)

If the ambient noise level exceeds the applicable limit as noted in the above table, the ambient noise level shall be the standard.

(Ord. 1962 § 2 (part), 2002)

13.01.050 - Noise levels prohibited.

Noise levels shall not exceed the ambient noise levels in Section 13.01.040 by the following dB(A) levels for the cumulative period of time specified:

(1) Less than 5dB(A) for a cumulative period of more than thirty minutes in any hour;

(2) Less than 10 dB(A) for a cumulative period of more than fifteen minutes in any hour;

(3) Less than 15 dB(A) for a cumulative period of more than five minutes in any hour;

(4) Less than 20 dB(A) for a cumulative period of more than one minute in any hour;

(5) 20 dB(A) or more for any period of time.

(Ord. 1962 § 2 (part), 2002)

13.01.060 - Noise source exemptions.

The following activities shall be exempted from the provisions of this chapter:

(1) All mechanical devices, apparatus or equipment used, related to or connected with emergency

machinery, vehicle or work.

(2) The provisions of this regulation shall not preclude the construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation projects, public works projects or essential public works services and facilities, including those utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.

(3) Activities conducted on the grounds of any elementary, intermediate or secondary school or college.

(4) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a permit as required by this code.

(5) Activities conducted in public parks and public playgrounds, provided said events are conducted pursuant to a permit as required by this code.

(6) Any activity to the extent regulation thereof has been preempted by state or federal law.

(7) Traffic on any roadway or railroad right-of-way.

(8) The operation of the Southern California Logistics Airport.

(9) Construction activity on private properties that are determined by the director of building and safety to be essential to the completion of a project.

(Ord. 1962 § 2 (part), 2002)

13.01.070 - Notice and penalties.

Any person violating any of the provisions, or failing to comply with the requirements of this chapter, is guilty of a civil penalty, punishable in accordance with Chapter 1.05. In addition, in the discretion of the city attorney and based upon the specific facts and circumstances presented to him or her, any such violation may be charged as an infraction subject to the penalties contained in Section 1.04.010.

(Ord. 1962 § 2 (part), 2002)

13.01.080 - Severability.

If any provision of the ordinance codified in this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the ordinance, and the application of such provision to other persons or circumstances, shall not be affected thereby.

(Ord. 1962 § 2 (part), 2002)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:15241

15241_L1_H 1.North
34, 29' 36.670000"117, 16' 52.640000"

15241_L1_H 2.South
34, 29' 36.610000"117, 16' 52.610000"

15241_L1_H 3.East
34, 29' 36.460000"117, 16' 52.580000"

15241_L1_H 4.West
34, 29' 36.490000"117, 16' 52.580000"

JN:15241

15241_L2_J 1.North
34, 29' 20.670000"117, 16' 42.910000"

15241_L2_J 2.South
34, 29' 20.670000"117, 16' 42.910000"

15241_L2_J 3.East
34, 29' 20.660000"117, 16' 42.910000"

15241_L2_J 4.West
34, 29' 20.710000"117, 16' 42.970000"

15241_L3_O 1.North
34, 29' 9.060000"117, 16' 43.270000"

15241_L3_O 2.South
34, 29' 9.040000"117, 16' 43.270000"

15241_L3_O 3.East
34, 29' 9.040000"117, 16' 43.270000"

15241_L3_O 4.West
34, 29' 8.870000"117, 16' 43.330000"

JN:15241

15241_L4_P 1.North
34, 28' 47.630000"117, 17' 30.680000"

15241_L4_P 2.South
34, 28' 47.500000"117, 17' 30.680000"

15241_L4_P 3.East
34, 28' 47.520000"117, 17' 30.650000"

15241_L4_P 4.West
34, 28' 47.560000"117, 17' 30.680000"

JN:15241

15241_L5_S 1.North
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15241_L5_S 2.South
34, 29' 2.940000"117, 17' 29.550000"

15241_L5_S 3.East
34, 29' 2.800000"117, 17' 29.500000"

15241_L5_S 4.West
34, 29' 2.790000"117, 17' 29.520000"

JN:15241

15241_L6_Z 1.North
34, 29' 16.150000"117, 17' 30.290000"

15241_L6_Z 2.South
34, 29' 16.080000"117, 17' 30.290000"

15241_L6_Z 3.East
34, 29' 16.110000"117, 17' 30.290000"

15241_L6_Z 4.West
34, 29' 15.990000"117, 17' 30.400000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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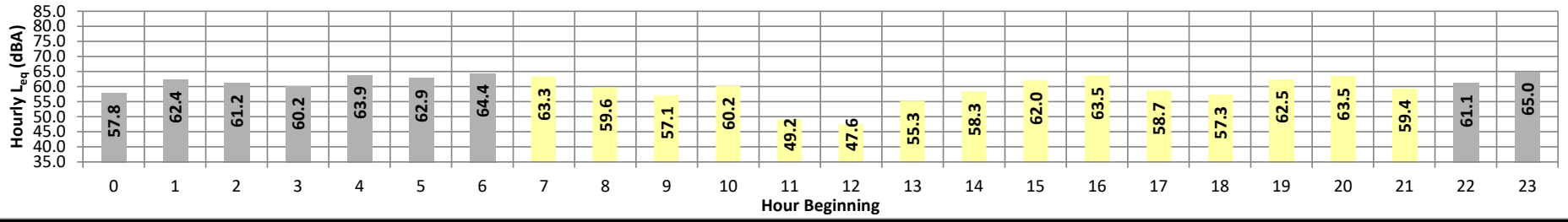
24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L1 - Located northeast of the site near the residence at 17540 *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* Benton Way *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.8	62.4	53.7	62.3	62.2	61.6	61.2	58.8	56.7	54.3	54.1	54.0	57.8	10.0	67.8
	1	62.4	67.0	56.6	66.8	66.7	66.5	66.2	63.8	60.7	57.5	57.0	56.7	62.4	10.0	72.4
	2	61.2	66.6	52.8	66.5	66.3	65.9	65.6	62.9	59.1	53.9	53.4	52.9	61.2	10.0	71.2
	3	60.2	65.3	54.0	65.1	65.0	64.6	64.2	62.1	58.0	55.2	54.4	54.1	60.2	10.0	70.2
	4	63.9	69.1	56.4	68.9	68.6	68.1	67.8	65.8	62.0	57.3	56.9	56.6	63.9	10.0	73.9
	5	62.9	67.9	54.7	67.8	67.6	67.3	67.1	64.7	61.4	55.9	55.3	54.9	62.9	10.0	72.9
	6	64.4	70.4	57.8	70.2	70.0	69.7	69.2	65.5	61.4	58.5	58.3	58.0	64.4	10.0	74.4
Day	7	63.3	69.0	56.5	68.7	68.6	68.2	67.8	64.9	60.7	57.3	56.9	56.6	63.3	0.0	63.3
	8	59.6	65.4	53.0	65.2	65.1	64.7	64.1	60.7	57.3	53.8	53.5	53.1	59.6	0.0	59.6
	9	57.1	63.5	49.3	63.3	63.1	62.4	61.7	58.0	54.7	51.1	50.6	49.6	57.1	0.0	57.1
	10	60.2	66.0	51.8	65.8	65.7	65.4	65.0	61.5	58.3	53.1	52.4	51.9	60.2	0.0	60.2
	11	49.2	55.3	40.6	55.0	54.9	54.5	53.7	49.9	46.9	42.4	41.4	40.7	49.2	0.0	49.2
	12	47.6	52.0	43.5	51.5	50.9	50.2	49.9	48.7	47.5	44.2	43.8	43.6	47.6	0.0	47.6
	13	55.3	61.6	50.2	60.9	60.5	60.0	59.3	56.2	53.5	51.0	50.5	50.3	55.3	0.0	55.3
	14	58.3	64.3	48.3	64.1	64.0	63.5	63.0	59.5	55.8	50.7	49.4	48.6	58.3	0.0	58.3
	15	62.0	68.0	52.5	67.9	67.6	67.0	66.3	63.7	60.0	54.2	53.5	52.7	62.0	0.0	62.0
	16	63.5	70.1	55.1	69.9	69.7	69.1	68.4	64.9	60.7	56.5	55.9	55.3	63.5	0.0	63.5
	17	58.7	64.0	54.1	63.8	63.4	62.8	62.1	59.3	57.5	55.4	55.0	54.4	58.7	0.0	58.7
	18	57.3	62.7	48.4	62.5	62.4	61.9	61.7	59.1	55.9	49.4	49.0	48.6	57.3	0.0	57.3
	19	62.5	68.3	52.0	68.0	67.7	67.3	67.1	64.9	59.4	52.9	52.4	52.1	62.5	5.0	67.5
	20	63.5	68.7	57.5	68.4	68.2	67.6	67.2	65.0	62.0	58.2	57.9	57.6	63.5	5.0	68.5
	21	59.4	64.2	53.1	64.1	63.9	63.5	63.0	61.4	58.0	53.8	53.5	53.3	59.4	5.0	64.4
Night	22	61.1	66.5	53.4	66.3	66.2	65.8	65.4	62.7	59.1	54.5	54.1	53.6	61.1	10.0	71.1
	23	65.0	70.3	57.1	70.0	69.8	69.5	69.2	66.7	62.7	57.9	57.6	57.2	65.0	10.0	75.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.6	52.0	40.6	51.5	50.9	50.2	49.9	48.7	46.9	42.4	41.4	40.7
	Max	63.5	70.1	57.5	69.9	69.7	69.1	68.4	65.0	62.0	58.2	57.9	57.6
Energy Average		60.2	Average:		63.9	63.7	63.2	62.7	59.8	56.5	52.3	51.7	51.2
Night	Min	57.8	62.4	52.8	62.3	62.2	61.6	61.2	58.8	56.7	53.9	53.4	52.9
	Max	65.0	70.4	57.8	70.2	70.0	69.7	69.2	66.7	62.7	58.5	58.3	58.0
Energy Average		62.6	Average:		67.1	66.9	66.6	66.2	63.7	60.1	56.1	55.7	55.3

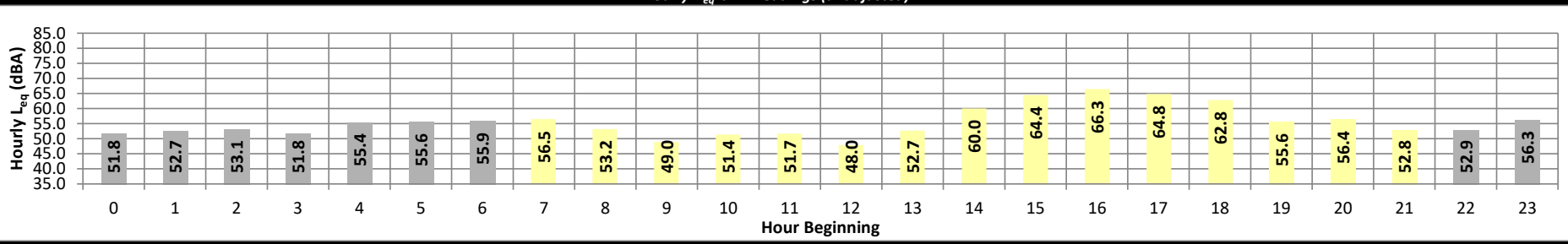
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
69.0	**60.2**	**62.6**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L2 - Located east of the site near the residence at 13104 High *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* Crest St. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.8	57.0	48.8	56.8	56.4	55.6	54.6	52.3	50.9	49.3	49.1	48.8	51.8	10.0	61.8
	1	52.7	56.7	49.4	56.3	56.0	55.3	55.0	53.7	52.3	50.0	49.7	49.4	52.7	10.0	62.7
	2	53.1	57.6	49.2	57.4	57.0	56.1	55.8	54.0	52.3	50.2	49.7	49.3	53.1	10.0	63.1
	3	51.8	56.1	48.9	55.8	55.5	54.7	54.3	52.6	51.1	49.5	49.3	49.0	51.8	10.0	61.8
	4	55.4	61.9	50.8	61.6	61.3	60.4	59.2	55.8	53.9	51.5	51.3	50.9	55.4	10.0	65.4
	5	55.6	60.5	51.7	60.3	59.9	58.9	58.3	56.6	54.8	52.4	52.1	51.8	55.6	10.0	65.6
	6	55.9	60.5	52.0	60.2	59.9	59.3	58.8	56.5	55.2	52.9	52.5	52.2	55.9	10.0	65.9
Day	7	56.5	62.8	51.3	62.3	61.9	60.9	60.2	57.4	54.8	52.3	52.0	51.4	56.5	0.0	56.5
	8	53.2	59.6	46.6	59.1	58.6	57.7	57.1	54.7	51.3	47.8	47.3	46.7	53.2	0.0	53.2
	9	49.0	55.2	42.3	54.8	54.4	53.2	52.5	50.0	47.9	44.1	43.4	42.6	49.0	0.0	49.0
	10	51.4	60.9	44.1	60.5	59.8	58.0	56.2	51.2	47.7	44.9	44.6	44.2	51.4	0.0	51.4
	11	51.7	62.4	39.9	61.5	60.7	59.7	57.7	50.0	46.4	41.6	41.0	40.1	51.7	0.0	51.7
	12	48.0	55.0	40.0	54.5	54.2	52.8	52.1	49.4	45.7	41.2	40.7	40.2	48.0	0.0	48.0
	13	52.7	61.3	44.3	60.6	59.8	58.2	57.0	53.3	50.5	46.0	45.2	44.5	52.7	0.0	52.7
	14	60.0	69.6	47.8	68.8	68.0	66.4	65.1	60.4	56.2	50.3	49.2	48.1	60.0	0.0	60.0
	15	64.4	73.4	50.8	72.7	72.0	70.6	69.5	65.1	61.0	53.9	52.7	51.3	64.4	0.0	64.4
	16	66.3	75.9	52.0	75.2	74.6	72.8	71.5	66.5	62.3	55.3	53.9	52.3	66.3	0.0	66.3
	17	64.8	74.4	50.9	73.7	72.9	71.1	69.9	65.2	60.7	53.7	52.6	51.3	64.8	0.0	64.8
	18	62.8	72.1	48.7	71.5	70.8	68.8	67.4	63.5	59.1	51.9	50.5	49.0	62.8	0.0	62.8
	19	55.6	63.3	47.7	62.8	62.3	60.7	59.5	56.4	53.7	49.2	48.6	47.9	55.6	5.0	60.6
	20	56.4	62.8	50.8	62.4	61.8	60.7	59.7	57.1	55.1	52.0	51.5	51.0	56.4	5.0	61.4
	21	52.8	58.5	48.5	58.0	57.6	56.4	55.6	53.5	52.0	49.3	48.9	48.6	52.8	5.0	57.8
Night	22	52.9	58.4	48.7	57.8	57.4	56.1	55.4	53.6	52.0	50.0	49.6	48.9	52.9	10.0	62.9
	23	56.3	61.2	50.7	60.8	60.6	60.1	59.7	57.7	54.9	52.1	51.4	50.8	56.3	10.0	66.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.0	55.0	39.9	54.5	54.2	52.8	52.1	49.4	45.7	41.2	40.7	40.1
	Max	66.3	75.9	52.0	75.2	74.6	72.8	71.5	66.5	62.3	55.3	53.9	52.3
Energy Average		60.1	Average:		63.9	63.3	61.9	60.7	56.9	53.6	48.9	48.1	47.3
Night	Min	51.8	56.1	48.7	55.8	55.5	54.7	54.3	52.3	50.9	49.3	49.1	48.8
	Max	56.3	61.9	52.0	61.6	61.3	60.4	59.7	57.7	55.2	52.9	52.5	52.2
Energy Average		54.3	Average:		58.6	58.2	57.4	56.8	54.7	53.1	50.9	50.5	50.1

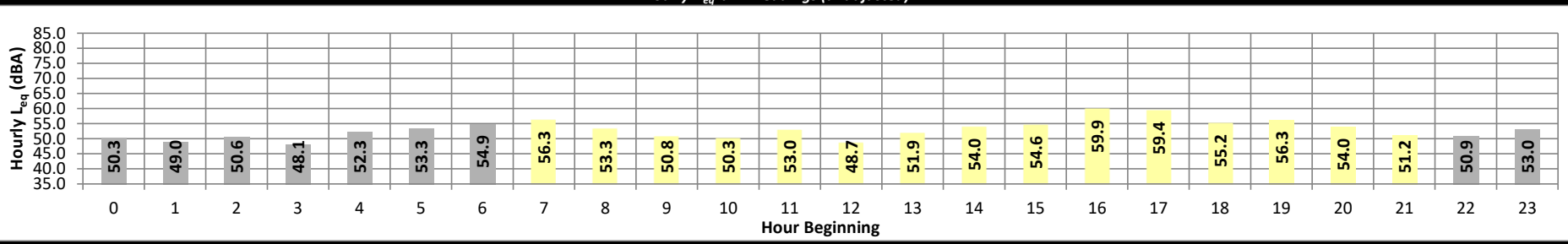
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
62.4	**60.1**	**54.3**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L3 - Located southeast of the site near the residence at 12922 *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* High Vista St. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.3	56.6	45.4	56.1	55.5	54.1	53.2	50.5	49.4	47.5	46.8	45.8	50.3	10.0	60.3
	1	49.0	54.2	44.6	53.8	53.4	52.7	52.2	50.0	47.9	45.2	45.0	44.7	49.0	10.0	59.0
	2	50.6	56.7	45.2	56.3	55.9	54.8	53.9	51.5	49.1	46.4	46.0	45.4	50.6	10.0	60.6
	3	48.1	56.0	43.3	55.6	55.1	53.1	51.7	48.1	46.4	44.1	43.8	43.3	48.1	10.0	58.1
	4	52.3	60.2	47.0	59.8	59.3	57.9	56.5	52.3	50.4	47.9	47.5	47.1	52.3	10.0	62.3
	5	53.3	61.4	48.0	61.0	60.5	58.4	56.8	53.3	51.4	48.9	48.5	48.2	53.3	10.0	63.3
	6	54.9	63.4	49.2	63.0	62.4	60.8	59.0	54.5	52.6	50.0	49.6	49.3	54.9	10.0	64.9
Day	7	56.3	66.2	49.3	65.8	65.2	62.7	60.6	55.4	52.9	50.1	49.7	49.4	56.3	0.0	56.3
	8	53.3	62.6	44.2	61.9	61.2	59.5	58.4	53.6	49.7	45.4	44.9	44.4	53.3	0.0	53.3
	9	50.8	61.4	39.5	61.0	60.2	58.3	56.2	49.5	45.7	41.0	40.3	39.7	50.8	0.0	50.8
	10	50.3	61.1	38.9	60.6	59.8	57.6	55.6	48.7	45.1	40.4	39.8	39.1	50.3	0.0	50.3
	11	53.0	66.1	36.2	65.1	63.9	61.2	58.7	48.3	43.4	37.8	36.9	36.4	53.0	0.0	53.0
	12	48.7	58.2	36.8	57.6	56.9	55.1	53.6	48.9	45.8	38.7	37.8	37.1	48.7	0.0	48.7
	13	51.9	62.4	40.9	61.9	61.2	59.2	57.4	51.2	46.7	42.3	41.7	41.1	51.9	0.0	51.9
	14	54.0	64.6	44.7	64.1	63.6	61.6	58.3	52.4	49.7	46.0	45.4	44.9	54.0	0.0	54.0
	15	54.6	63.4	47.9	62.7	61.9	60.0	58.4	54.9	52.4	49.3	48.7	48.0	54.6	0.0	54.6
	16	59.9	71.6	49.8	70.7	69.6	66.5	64.4	58.7	55.5	51.2	50.7	50.0	59.9	0.0	59.9
	17	59.4	71.8	48.8	71.6	70.5	65.9	64.6	56.3	53.7	50.2	49.6	49.0	59.4	0.0	59.4
	18	55.2	64.9	46.0	64.1	63.3	61.5	59.9	55.5	51.5	47.5	46.8	46.2	55.2	0.0	55.2
	19	56.3	66.3	46.4	65.8	65.1	62.4	61.1	56.0	52.7	47.8	47.1	46.6	56.3	5.0	61.3
	20	54.0	63.0	48.0	62.5	61.9	60.0	58.0	53.5	51.7	49.1	48.6	48.2	54.0	5.0	59.0
	21	51.2	60.2	46.0	59.3	58.4	56.2	54.7	51.3	49.4	46.9	46.5	46.1	51.2	5.0	56.2
Night	22	50.9	58.3	45.5	57.7	56.8	55.3	54.3	51.5	49.5	46.4	45.9	45.6	50.9	10.0	60.9
	23	53.0	59.8	47.7	59.3	58.7	57.0	56.0	53.7	51.7	48.9	48.3	47.9	53.0	10.0	63.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.7	58.2	36.2	57.6	56.9	55.1	53.6	48.3	43.4	37.8	36.9	36.4
	Max	59.9	71.8	49.8	71.6	70.5	66.5	64.6	58.7	55.5	51.2	50.7	50.0
Energy Average		55.1	Average:		63.7	62.8	60.5	58.7	52.9	49.7	45.6	45.0	44.4
Night	Min	48.1	54.2	43.3	53.8	53.4	52.7	51.7	48.1	46.4	44.1	43.8	43.3
	Max	54.9	63.4	49.2	63.0	62.4	60.8	59.0	54.5	52.6	50.0	49.6	49.3
Energy Average		51.9	Average:		58.1	57.5	56.0	54.8	51.7	49.8	47.3	46.8	46.4

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
59.3	**55.1**	**51.9**

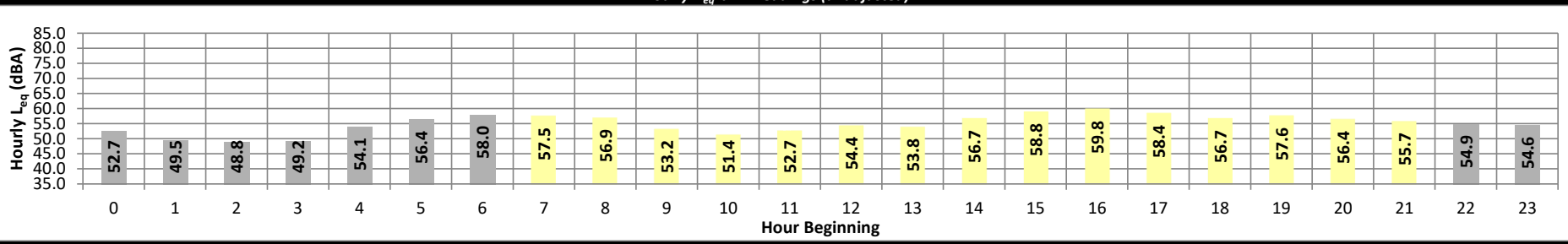
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L4 - Located southwest of the site near the residence at 17047 *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* Torino Dr. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.7	61.5	43.5	61.3	60.9	59.3	58.2	53.2	48.4	44.4	44.0	43.6	52.7	10.0	62.7
	1	49.5	58.0	43.7	57.6	56.8	54.9	53.6	49.8	46.8	44.4	44.1	43.8	49.5	10.0	59.5
	2	48.8	56.6	43.5	56.2	55.7	54.0	52.7	49.1	46.8	44.3	44.0	43.6	48.8	10.0	58.8
	3	49.2	56.4	44.1	56.1	55.6	54.2	53.0	49.5	47.2	44.9	44.5	44.2	49.2	10.0	59.2
	4	54.1	61.8	47.6	61.5	61.1	60.0	58.2	54.2	52.0	48.9	48.2	47.7	54.1	10.0	64.1
	5	56.4	65.1	49.6	64.7	64.2	62.4	60.5	56.1	54.0	50.6	50.1	49.7	56.4	10.0	66.4
	6	58.0	65.6	52.8	65.2	64.7	62.9	61.6	58.1	56.4	53.9	53.4	52.9	58.0	10.0	68.0
Day	7	57.5	66.0	52.0	65.5	64.9	62.9	61.3	57.4	55.5	53.1	52.6	52.1	57.5	0.0	57.5
	8	56.9	65.7	50.5	65.0	64.0	62.0	60.7	57.0	54.9	51.9	51.3	50.6	56.9	0.0	56.9
	9	53.2	61.7	48.1	60.6	59.8	57.5	56.2	53.3	51.7	49.3	48.8	48.3	53.2	0.0	53.2
	10	51.4	58.5	46.3	58.0	57.5	56.2	54.6	51.7	50.0	47.5	47.0	46.4	51.4	0.0	51.4
	11	52.7	60.8	47.1	60.2	59.7	58.2	56.3	52.7	50.8	48.4	47.9	47.3	52.7	0.0	52.7
	12	54.4	62.9	48.1	62.0	61.3	59.9	58.9	54.4	51.9	49.3	48.8	48.3	54.4	0.0	54.4
	13	53.8	59.9	50.0	59.5	59.0	57.6	56.7	54.3	52.8	50.9	50.6	50.2	53.8	0.0	53.8
	14	56.7	64.9	51.0	64.2	63.6	62.0	60.5	56.9	54.8	52.1	51.6	51.2	56.7	0.0	56.7
	15	58.8	67.2	52.9	66.4	65.7	63.6	62.4	59.1	57.1	54.2	53.5	53.0	58.8	0.0	58.8
	16	59.8	68.1	53.4	67.3	66.6	64.8	63.7	60.3	57.8	54.7	54.1	53.5	59.8	0.0	59.8
	17	58.4	65.9	53.3	65.3	64.5	62.9	61.8	59.0	56.8	54.2	53.8	53.4	58.4	0.0	58.4
	18	56.7	64.9	51.3	64.1	63.1	61.1	59.8	57.1	55.3	52.5	52.0	51.4	56.7	0.0	56.7
	19	57.6	64.3	53.7	63.9	63.3	62.0	61.2	57.9	56.1	54.2	53.9	53.7	57.6	5.0	62.6
	20	56.4	63.7	51.2	63.2	62.5	60.7	59.6	56.8	55.1	52.4	51.8	51.3	56.4	5.0	61.4
	21	55.7	62.6	50.7	62.2	61.8	60.0	58.8	56.2	54.5	51.8	51.4	50.8	55.7	5.0	60.7
Night	22	54.9	63.1	49.7	62.6	62.1	59.9	58.2	55.0	53.2	50.7	50.3	49.8	54.9	10.0	64.9
	23	54.6	62.5	48.6	62.1	61.7	60.4	58.7	54.9	52.3	49.5	49.0	48.6	54.6	10.0	64.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.4	58.5	46.3	58.0	57.5	56.2	54.6	51.7	50.0	47.5	47.0	46.4
	Max	59.8	68.1	53.7	67.3	66.6	64.8	63.7	60.3	57.8	54.7	54.1	53.7
Energy Average		56.6	Average:		63.2	62.5	60.8	59.5	56.3	54.3	51.8	51.3	50.8
Night	Min	48.8	56.4	43.5	56.1	55.6	54.0	52.7	49.1	46.8	44.3	44.0	43.6
	Max	58.0	65.6	52.8	65.2	64.7	62.9	61.6	58.1	56.4	53.9	53.4	52.9
Energy Average		54.2	Average:		60.8	60.3	58.7	57.2	53.3	50.8	47.9	47.5	47.1

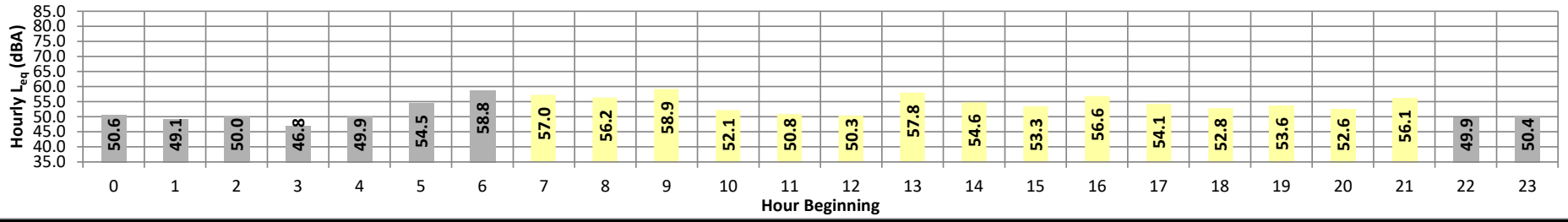
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
61.4	**56.6**	**54.2**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L5 - Located southwest of the site near the residence at 17066 *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* Monaco Dr. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.6	59.0	43.1	58.5	58.2	57.2	56.3	49.3	46.2	43.7	43.4	43.2	50.6	10.0	60.6
	1	49.1	56.6	43.7	56.1	55.6	54.1	53.1	49.8	46.8	44.3	44.1	43.9	49.1	10.0	59.1
	2	50.0	60.4	43.6	59.5	58.8	56.3	52.9	49.4	47.2	44.6	44.2	43.8	50.0	10.0	60.0
	3	46.8	50.9	44.3	50.6	50.4	49.5	48.8	47.4	46.3	44.9	44.7	44.4	46.8	10.0	56.8
	4	49.9	56.2	46.4	55.8	55.4	54.1	52.8	50.3	48.8	47.1	46.8	46.5	49.9	10.0	59.9
	5	54.5	60.5	48.7	59.7	59.2	58.2	57.6	55.8	53.1	50.5	49.8	49.0	54.5	10.0	64.5
	6	58.8	65.6	51.4	64.5	63.9	62.8	62.2	59.8	57.6	53.8	52.9	51.9	58.8	10.0	68.8
Day	7	57.0	64.2	50.1	63.2	62.7	61.7	60.9	58.2	55.2	51.7	51.1	50.4	57.0	0.0	57.0
	8	56.2	65.0	46.5	64.6	64.3	63.1	62.1	55.6	51.3	48.1	47.3	46.8	56.2	0.0	56.2
	9	58.9	69.0	44.8	68.5	68.2	66.1	64.7	59.1	49.9	46.3	45.7	45.1	58.9	0.0	58.9
	10	52.1	59.8	43.7	59.1	58.8	58.0	57.2	52.9	48.5	45.0	44.5	43.9	52.1	0.0	52.1
	11	50.8	58.6	44.2	58.2	57.7	56.6	55.5	51.2	48.0	45.2	44.9	44.4	50.8	0.0	50.8
	12	50.3	58.4	43.7	58.1	57.8	56.9	55.5	50.0	47.2	44.7	44.3	43.9	50.3	0.0	50.3
	13	57.8	69.3	49.2	68.5	67.7	65.8	64.3	54.0	51.8	50.0	49.7	49.4	57.8	0.0	57.8
	14	54.6	63.8	46.9	63.2	62.5	61.3	60.3	52.9	50.2	47.8	47.5	47.1	54.6	0.0	54.6
	15	53.3	60.6	48.5	60.1	59.6	58.2	57.1	53.7	51.5	49.4	49.1	48.7	53.3	0.0	53.3
	16	56.6	66.4	49.6	66.1	65.7	63.2	61.1	55.5	53.0	50.5	50.2	49.8	56.6	0.0	56.6
	17	54.1	61.9	48.7	61.6	61.2	59.9	58.3	53.9	51.7	49.6	49.2	48.8	54.1	0.0	54.1
	18	52.8	60.0	47.8	59.6	59.2	58.0	56.6	53.0	50.8	48.6	48.3	47.9	52.8	0.0	52.8
	19	53.6	61.8	46.5	61.5	61.2	60.3	58.8	53.3	50.3	47.2	46.9	46.6	53.6	5.0	58.6
	20	52.6	60.0	48.2	59.5	59.0	57.8	56.6	52.6	50.6	48.9	48.6	48.3	52.6	5.0	57.6
	21	56.1	67.0	47.7	66.3	65.5	64.4	61.7	53.8	50.0	48.4	48.1	47.8	56.1	5.0	61.1
Night	22	49.9	55.5	46.7	55.1	54.7	53.6	52.7	50.1	48.9	47.5	47.2	46.9	49.9	10.0	59.9
	23	50.4	57.1	45.6	56.6	56.0	54.8	54.0	51.2	48.7	46.5	46.1	45.7	50.4	10.0	60.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.3	58.4	43.7	58.1	57.7	56.6	55.5	50.0	47.2	44.7	44.3	43.9
	Max	58.9	69.3	50.1	68.5	68.2	66.1	64.7	59.1	55.2	51.7	51.1	50.4
Energy Average		55.2	Average:		62.5	62.1	60.7	59.4	54.0	50.7	48.1	47.7	47.3
Night	Min	46.8	50.9	43.1	50.6	50.4	49.5	48.8	47.4	46.2	43.7	43.4	43.2
	Max	58.8	65.6	51.4	64.5	63.9	62.8	62.2	59.8	57.6	53.8	52.9	51.9
Energy Average		52.7	Average:		57.4	56.9	55.6	54.5	51.5	49.3	47.0	46.6	46.1

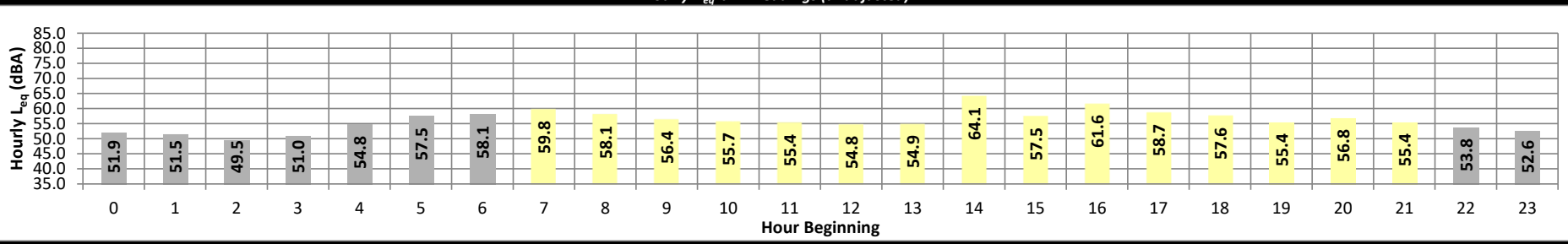
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
59.9	**55.2**	**52.7**

24-Hour Noise Level Measurement Summary

Date: Thursday, May 18, 2023 *Location:* L6 - Located west of the site near the retail building at 13010 *Meter:* Piccolo II *JN:* 15241

Project: Nisqualli Road *Source:* Hesperia Rd. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.9	60.2	44.8	59.8	59.2	57.8	56.8	52.3	48.2	45.4	45.2	44.9	51.9	10.0	61.9
	1	51.5	61.7	45.0	60.9	59.7	56.8	55.4	51.5	48.4	45.8	45.5	45.1	51.5	10.0	61.5
	2	49.5	57.9	43.5	57.4	56.6	54.8	53.8	50.1	46.6	44.1	43.9	43.6	49.5	10.0	59.5
	3	51.0	59.4	45.3	59.0	58.4	56.8	55.5	51.2	47.9	45.8	45.6	45.3	51.0	10.0	61.0
	4	54.8	63.0	47.1	62.5	61.8	60.1	59.2	55.6	52.0	48.1	47.6	47.3	54.8	10.0	64.8
	5	57.5	65.9	49.2	65.4	64.6	63.2	62.0	58.2	54.9	50.4	49.8	49.4	57.5	10.0	67.5
	6	58.1	66.9	50.8	66.3	65.4	62.5	61.5	59.0	56.3	52.2	51.7	51.0	58.1	10.0	68.1
Day	7	59.8	69.4	52.5	68.5	67.2	64.6	63.5	59.9	57.8	54.2	53.5	52.7	59.8	0.0	59.8
	8	58.1	67.2	48.4	66.7	66.0	63.8	62.0	58.3	55.9	51.2	50.0	48.7	58.1	0.0	58.1
	9	56.4	66.9	48.1	66.0	64.8	61.8	59.7	56.2	54.0	49.9	49.1	48.3	56.4	0.0	56.4
	10	55.7	64.5	47.5	64.0	63.4	61.6	60.0	56.0	53.0	49.3	48.5	47.7	55.7	0.0	55.7
	11	55.4	64.8	46.2	64.3	63.8	61.7	59.6	55.4	52.3	48.1	47.3	46.5	55.4	0.0	55.4
	12	54.8	64.2	47.2	63.6	62.9	60.8	58.9	54.5	52.2	48.5	48.0	47.4	54.8	0.0	54.8
	13	54.9	63.3	47.4	62.7	62.1	60.1	58.5	55.4	53.0	49.2	48.4	47.6	54.9	0.0	54.9
	14	64.1	78.6	49.9	77.7	76.2	70.9	67.3	57.0	54.6	51.5	50.9	50.1	64.1	0.0	64.1
	15	57.5	65.7	51.0	65.3	64.7	62.6	61.2	57.6	55.7	52.6	51.9	51.2	57.5	0.0	57.5
	16	61.6	71.5	51.9	70.9	70.3	68.9	66.9	60.8	57.3	53.7	53.0	52.2	61.6	0.0	61.6
	17	58.7	65.9	51.8	65.4	64.7	63.1	62.1	59.4	57.6	53.6	52.9	52.0	58.7	0.0	58.7
	18	57.6	65.0	49.5	64.5	63.9	62.2	61.2	58.6	56.3	51.5	50.6	49.7	57.6	0.0	57.6
	19	55.4	62.4	47.1	61.8	61.0	59.6	58.9	56.7	54.3	49.0	48.1	47.3	55.4	5.0	60.4
	20	56.8	65.8	48.2	65.4	64.6	62.5	61.3	57.3	54.2	49.7	49.0	48.3	56.8	5.0	61.8
	21	55.4	64.6	47.4	64.0	62.8	60.5	59.2	56.0	53.2	48.9	48.2	47.6	55.4	5.0	60.4
Night	22	53.8	61.6	46.1	61.0	60.2	58.8	57.9	54.8	51.5	47.3	46.7	46.3	53.8	10.0	63.8
	23	52.6	60.5	45.4	59.9	59.0	57.6	56.6	53.3	50.5	46.7	46.1	45.6	52.6	10.0	62.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.8	62.4	46.2	61.8	61.0	59.6	58.5	54.5	52.2	48.1	47.3	46.5
	Max	64.1	78.6	52.5	77.7	76.2	70.9	67.3	60.8	57.8	54.2	53.5	52.7
Energy Average		58.4	Average:		66.0	65.2	63.0	61.3	57.3	54.7	50.7	50.0	49.1
Night	Min	49.5	57.9	43.5	57.4	56.6	54.8	53.8	50.1	46.6	44.1	43.9	43.6
	Max	58.1	66.9	50.8	66.3	65.4	63.2	62.0	59.0	56.3	52.2	51.7	51.0
Energy Average		54.3	Average:		61.3	60.5	58.7	57.6	54.0	50.7	47.3	46.9	46.5

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
61.9	**58.4**	**54.3**

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Hesperia Rd.
Road Segment: n/o Ottawa St.

Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,091 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,456 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.51	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.75	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.48	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	70.2	66.9	62.1	70.8	71.2
Medium Trucks:	59.9	59.9	51.1	52.9	60.9	61.0
Heavy Trucks:	67.5	67.4	60.6	60.8	68.7	68.9
Vehicle Noise:	72.4	72.3	67.9	64.8	73.1	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	465	1,002
CNEL:	106	227	490	1,055

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Hesperia Rd.
Road Segment: n/o Ottawa St.

Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,112 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,458 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.51	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.75	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.48	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	70.2	66.9	62.1	70.8	71.2
Medium Trucks:	59.9	59.9	51.1	52.9	60.9	61.0
Heavy Trucks:	67.5	67.4	60.6	60.8	68.7	68.9
Vehicle Noise:	72.4	72.3	67.9	64.8	73.1	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	465	1,002
CNEL:	106	227	490	1,056

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC
Road Name: Hesperia Rd.
Road Segment: n/o Ottawa St.

Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,108 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,598 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.75	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.51	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.24	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	70.4	67.1	62.4	71.0	71.5
Medium Trucks:	60.1	60.1	51.4	53.1	61.2	61.3
Heavy Trucks:	67.8	67.7	60.9	61.0	68.9	69.1
Vehicle Noise:	72.6	72.5	68.1	65.1	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	224	483	1,040
CNEL:	110	236	508	1,096

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P
Road Name: Hesperia Rd.
Road Segment: n/o Ottawa St.

Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,129 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,599 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.75	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.51	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.24	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	70.4	67.1	62.4	71.0	71.5
Medium Trucks:	60.1	60.1	51.4	53.1	61.2	61.3
Heavy Trucks:	67.8	67.7	60.9	61.0	68.9	69.1
Vehicle Noise:	72.6	72.5	68.1	65.1	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	224	483	1,040
CNEL:	110	236	509	1,096

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Nisqualli Trailer Lot
Road Name: Hesperia Rd. | Job Number: 15241
Road Segment: n/o Ottawa St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,091 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,086 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.50	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.76	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.49	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	71.1	67.9	63.1	71.8	72.2
Medium Trucks:	60.9	60.9	52.1	53.9	61.9	62.0
Heavy Trucks:	68.5	68.4	61.6	61.8	69.7	69.9
Vehicle Noise:	73.4	73.3	68.9	65.8	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	251	542	1,167
CNEL:	123	265	570	1,229

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P | Project Name: Nisqualli Trailer Lot
Road Name: Hesperia Rd. | Job Number: 15241
Road Segment: n/o Ottawa St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,112 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,088 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.50	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.76	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.49	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	71.1	67.9	63.1	71.8	72.2
Medium Trucks:	60.9	60.9	52.1	53.9	61.9	62.0
Heavy Trucks:	68.5	68.4	61.6	61.8	69.7	69.9
Vehicle Noise:	73.4	73.3	68.9	65.8	74.1	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	251	542	1,167
CNEL:	123	265	571	1,229

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Nisqualli Trailer Lot
Road Name: Hesperia Rd. | Job Number: 15241
Road Segment: s/o Ottawa St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,819 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,437 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.47	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.79	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.52	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	70.1	66.8	62.1	70.7	71.2
Medium Trucks:	59.8	59.9	51.1	52.8	60.9	61.0
Heavy Trucks:	67.5	67.4	60.6	60.7	68.7	68.8
Vehicle Noise:	72.4	72.2	67.8	64.8	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	463	997
CNEL:	105	226	487	1,050

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P | Project Name: Nisqualli Trailer Lot
Road Name: Hesperia Rd. | Job Number: 15241
Road Segment: s/o Ottawa St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,837 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,439 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.48	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.79	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.52	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	70.1	66.8	62.1	70.7	71.2
Medium Trucks:	59.8	59.9	51.1	52.8	60.9	61.0
Heavy Trucks:	67.5	67.4	60.6	60.7	68.7	68.8
Vehicle Noise:	72.4	72.2	67.9	64.8	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	215	463	997
CNEL:	105	226	487	1,050

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC
Road Name: Hesperia Rd.
Road Segment: s/o Ottawa St.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,869 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,651 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.84	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.42	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.15	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	70.5	67.2	62.5	71.1	71.5
Medium Trucks:	60.2	60.2	51.4	53.2	61.2	61.4
Heavy Trucks:	67.8	67.8	60.9	61.1	69.0	69.2
Vehicle Noise:	72.7	72.6	68.2	65.1	73.5	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	227	489	1,054
CNEL:	111	239	515	1,110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P
Road Name: Hesperia Rd.
Road Segment: s/o Ottawa St.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,887 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,652 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.84	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.42	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.15	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	70.5	67.2	62.5	71.1	71.5
Medium Trucks:	60.2	60.2	51.4	53.2	61.2	61.4
Heavy Trucks:	67.8	67.8	60.9	61.1	69.0	69.2
Vehicle Noise:	72.7	72.6	68.2	65.1	73.5	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	227	489	1,055
CNEL:	111	239	516	1,111

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Hesperia Rd.
Road Segment: s/o Ottawa St.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,798 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,136 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.57	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.69	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.42	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	71.2	67.9	63.2	71.8	72.3
Medium Trucks:	60.9	61.0	52.2	53.9	62.0	62.1
Heavy Trucks:	68.6	68.5	61.7	61.8	69.8	69.9
Vehicle Noise:	73.5	73.3	68.9	65.9	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,179
CNEL:	124	268	577	1,242

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P
Road Name: Hesperia Rd.
Road Segment: s/o Ottawa St.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,816 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,137 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.57	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.69	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.42	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	71.2	67.9	63.2	71.8	72.3
Medium Trucks:	60.9	61.0	52.2	53.9	62.0	62.1
Heavy Trucks:	68.6	68.5	61.7	61.8	69.8	69.9
Vehicle Noise:	73.5	73.3	68.9	65.9	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,180
CNEL:	124	268	577	1,242

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,113 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,738 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.98	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.28	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.01	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	70.6	67.3	62.6	71.2	71.7
Medium Trucks:	60.3	60.4	51.6	53.4	61.4	61.5
Heavy Trucks:	68.0	67.9	61.1	61.2	69.2	69.3
Vehicle Noise:	72.9	72.7	68.4	65.3	73.6	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	232	500	1,077
CNEL:	113	244	527	1,135

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,131 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	2,739 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.98	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-19.28	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-16.01	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	70.6	67.3	62.6	71.2	71.7
Medium Trucks:	60.3	60.4	51.6	53.4	61.4	61.5
Heavy Trucks:	68.0	67.9	61.1	61.2	69.2	69.3
Vehicle Noise:	72.9	72.7	68.4	65.3	73.6	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	232	500	1,078
CNEL:	113	244	527	1,135

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,887 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,002 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.38	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.88	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.61	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	71.0	67.7	63.0	71.6	72.1
Medium Trucks:	60.7	60.8	52.0	53.8	61.8	61.9
Heavy Trucks:	68.4	68.3	61.5	61.6	69.6	69.7
Vehicle Noise:	73.3	73.1	68.8	65.7	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	247	532	1,146
CNEL:	121	260	560	1,206

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,905 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,003 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.38	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.88	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-15.61	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	71.0	67.7	63.0	71.6	72.1
Medium Trucks:	60.7	60.8	52.0	53.8	61.8	61.9
Heavy Trucks:	68.4	68.3	61.5	61.6	69.6	69.7
Vehicle Noise:	73.3	73.1	68.8	65.7	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	247	532	1,146
CNEL:	121	260	560	1,207

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,671 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,547 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.10	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.16	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.89	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	71.7	68.5	63.7	72.4	72.8
Medium Trucks:	61.5	61.5	52.7	54.5	62.5	62.6
Heavy Trucks:	69.1	69.0	62.2	62.4	70.3	70.5
Vehicle Noise:	74.0	73.9	69.5	66.4	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	276	594	1,280
CNEL:	135	290	626	1,348

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P
Road Name: Hesperia Rd.
Road Segment: s/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	50,688 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	3,548 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.10	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	81.00	-18.16	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.89	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	71.7	68.5	63.7	72.4	72.8
Medium Trucks:	61.5	61.5	52.7	54.5	62.5	62.6
Heavy Trucks:	69.1	69.0	62.2	62.4	70.3	70.5
Vehicle Noise:	74.0	73.9	69.5	66.4	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	276	594	1,280
CNEL:	135	291	626	1,349

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Enterprise St.
Road Segment: n/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	978 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	68 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-13.07	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-34.33	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-31.06	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.2	56.0	52.7	48.0	56.6	57.1
Medium Trucks:	46.2	46.2	37.4	39.2	47.2	47.3
Heavy Trucks:	54.7	54.6	47.8	48.0	55.9	56.1
Vehicle Noise:	58.8	58.6	54.0	51.3	59.5	59.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	30	64
CNEL:	7	15	31	68

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Enterprise St.
Road Segment: n/o Nisqualli Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,116 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	78 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	87.79%
Medium Trucks:	84.6%	2.8%	12.6%	1.46%
Heavy Trucks:	82.4%	4.3%	13.3%	10.76%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.96	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-30.76	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.08	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	56.1	52.8	48.1	56.7	57.2
Medium Trucks:	49.8	49.8	41.0	42.8	50.8	50.9
Heavy Trucks:	63.7	63.6	56.8	57.0	64.9	65.1
Vehicle Noise:	64.6	64.5	58.4	57.6	65.6	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	164
CNEL:	17	37	79	170

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Nisqualli Trailer Lot
Road Name: Enterprise St. | Job Number: 15241
Road Segment: n/o Nisqualli Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	997 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	70 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.99	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-34.25	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-30.98	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	56.1	52.8	48.1	56.7	57.2
Medium Trucks:	46.3	46.3	37.5	39.3	47.3	47.4
Heavy Trucks:	54.8	54.7	47.9	48.1	56.0	56.2
Vehicle Noise:	58.9	58.7	54.1	51.4	59.6	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	30	65
CNEL:	7	15	32	68

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P | Project Name: Nisqualli Trailer Lot
Road Name: Enterprise St. | Job Number: 15241
Road Segment: n/o Nisqualli Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,136 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	79 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	87.96%
Medium Trucks:	84.6%	2.8%	12.6%	1.44%
Heavy Trucks:	82.4%	4.3%	13.3%	10.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.88	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-30.72	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-22.07	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	56.2	52.9	48.2	56.8	57.3
Medium Trucks:	49.8	49.8	41.0	42.8	50.8	51.0
Heavy Trucks:	63.7	63.6	56.8	57.0	64.9	65.1
Vehicle Noise:	64.6	64.5	58.4	57.7	65.7	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	165
CNEL:	17	37	79	170

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Nisqualli Trailer Lot
Road Name: Enterprise St. | Job Number: 15241
Road Segment: n/o Nisqualli Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,192 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	83 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.21	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-33.47	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-30.20	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	56.9	53.6	48.8	57.5	57.9
Medium Trucks:	47.1	47.1	38.3	40.1	48.1	48.2
Heavy Trucks:	55.6	55.5	48.7	48.9	56.8	56.9
Vehicle Noise:	59.6	59.5	54.9	52.1	60.4	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	16	34	73
CNEL:	8	17	36	77

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P | Project Name: Nisqualli Trailer Lot
Road Name: Enterprise St. | Job Number: 15241
Road Segment: n/o Nisqualli Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,330 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	93 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	89.38%
Medium Trucks:	84.6%	2.8%	12.6%	1.34%
Heavy Trucks:	82.4%	4.3%	13.3%	9.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.12	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-30.36	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-21.96	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	57.0	53.7	48.9	57.6	58.0
Medium Trucks:	50.2	50.2	41.4	43.2	51.2	51.3
Heavy Trucks:	63.8	63.7	56.9	57.1	65.0	65.2
Vehicle Noise:	64.8	64.7	58.7	57.9	65.9	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	79	170
CNEL:	18	38	82	176

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	561 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	39 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.48	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-36.74	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-33.47	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.8	53.6	50.3	45.6	54.2	54.7
Medium Trucks:	43.8	43.8	35.0	36.8	44.8	44.9
Heavy Trucks:	52.3	52.2	45.4	45.6	53.5	53.7
Vehicle Noise:	56.4	56.2	51.6	48.9	57.1	57.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	44
CNEL:	5	10	22	47

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	584 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	41 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	95.37%
Medium Trucks:	84.6%	2.8%	12.6%	0.90%
Heavy Trucks:	82.4%	4.3%	13.3%	3.73%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.42	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-35.68	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-29.49	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.8	53.7	50.4	45.6	54.3	54.7
Medium Trucks:	44.8	44.9	36.1	37.9	45.9	46.0
Heavy Trucks:	56.3	56.2	49.4	49.6	57.5	57.7
Vehicle Noise:	58.4	58.3	53.0	51.2	59.4	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	29	63
CNEL:	7	14	30	65

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	656 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	46 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.80	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-36.06	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-32.79	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.4	54.3	51.0	46.3	54.9	55.3
Medium Trucks:	44.5	44.5	35.7	37.5	45.5	45.6
Heavy Trucks:	53.0	52.9	46.1	46.3	54.2	54.4
Vehicle Noise:	57.0	56.9	52.3	49.5	57.8	58.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	23	49
CNEL:	5	11	24	52

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	679 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	48 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	95.70%
Medium Trucks:	84.6%	2.8%	12.6%	0.87%
Heavy Trucks:	82.4%	4.3%	13.3%	3.43%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-14.74	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-35.14	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-29.20	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.5	54.3	51.0	46.3	54.9	55.4
Medium Trucks:	45.4	45.4	36.6	38.4	46.4	46.5
Heavy Trucks:	56.6	56.5	49.7	49.9	57.8	57.9
Vehicle Noise:	58.9	58.8	53.5	51.7	59.8	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	67
CNEL:	7	15	32	70

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Ottawa St.
Road Segment: w/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	768 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	54 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-14.12	3.93	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	77.72	-35.38	4.01	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-32.11	4.00	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.1	55.0	51.7	46.9	55.6	56.0
Medium Trucks:	45.1	45.2	36.4	38.1	46.2	46.3
Heavy Trucks:	53.7	53.6	46.8	46.9	54.9	55.0
Vehicle Noise:	57.7	57.6	53.0	50.2	58.5	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	12	25	55
CNEL:	6	12	27	57

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P
Road Name: Ottawa St.
Road Segment: w/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	791 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	55 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	95.98%
Medium Trucks:	84.6%	2.8%	12.6%	0.85%
Heavy Trucks:	82.4%	4.3%	13.3%	3.16%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-14.07	3.93	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	77.72	-34.58	4.01	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-28.89	4.00	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.2	55.0	51.7	47.0	55.6	56.1
Medium Trucks:	45.9	46.0	37.2	39.0	47.0	47.1
Heavy Trucks:	56.9	56.8	50.0	50.2	58.1	58.3
Vehicle Noise:	59.3	59.2	54.0	52.1	60.2	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	33	72
CNEL:	7	16	35	75

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Ottawa St.
Road Segment: e/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	579 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	41 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-15.35	3.93	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	77.72	-36.61	4.01	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-33.34	4.00	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.9	53.7	50.4	45.7	54.3	54.8
Medium Trucks:	43.9	43.9	35.2	36.9	45.0	45.1
Heavy Trucks:	52.5	52.4	45.6	45.7	53.6	53.8
Vehicle Noise:	56.5	56.4	51.8	49.0	57.3	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	10	21	45
CNEL:	5	10	22	48

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Ottawa St.
Road Segment: e/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	586 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	41 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	80.9%	9.5%	9.6%	97.74%
Medium Trucks:	84.6%	2.8%	12.6%	0.72%
Heavy Trucks:	82.4%	4.3%	13.3%	1.53%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-15.29	3.93	-1.20	*-4.51*	0.000	0.000
Medium Trucks:	77.72	-36.61	4.01	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-33.34	4.00	-1.20	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.9	53.8	50.5	45.8	54.4	54.8
Medium Trucks:	43.9	43.9	35.2	36.9	45.0	45.1
Heavy Trucks:	52.5	52.4	45.6	45.7	53.6	53.8
Vehicle Noise:	56.5	56.4	51.8	49.0	57.3	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	10	21	46
CNEL:	5	10	22	48

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,717 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	190 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.63	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-29.90	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.63	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.4	57.2	52.4	61.1	61.5
Medium Trucks:	50.6	50.7	41.9	43.6	51.7	51.8
Heavy Trucks:	59.2	59.1	52.3	52.4	60.3	60.5
Vehicle Noise:	63.2	63.1	58.5	55.7	64.0	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	59	127
CNEL:	13	29	62	133

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,724 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	191 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.62	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-29.90	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.63	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.5	57.2	52.4	61.1	61.5
Medium Trucks:	50.6	50.7	41.9	43.6	51.7	51.8
Heavy Trucks:	59.2	59.1	52.3	52.4	60.3	60.5
Vehicle Noise:	63.2	63.1	58.5	55.7	64.0	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	59	127
CNEL:	13	29	62	134

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,832 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	198 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.45	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-29.71	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.44	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	60.6	57.3	52.6	61.2	61.7
Medium Trucks:	50.8	50.8	42.1	43.8	51.8	52.0
Heavy Trucks:	59.4	59.3	52.4	52.6	60.5	60.7
Vehicle Noise:	63.4	63.3	58.7	55.9	64.2	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	61	131
CNEL:	14	30	64	137

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P | Project Name: Nisqualli Trailer Lot
Road Name: Ottawa St. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,839 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	199 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	32.0 feet
Centerline Dist. to Observer:	32.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	26.926
Medium Trucks:	26.595
Heavy Trucks:	26.628

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.44	3.93	-1.20	-4.51	0.000	0.000
Medium Trucks:	77.72	-29.71	4.01	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-26.44	4.00	-1.20	-5.72	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	60.6	57.4	52.6	61.2	61.7
Medium Trucks:	50.8	50.8	42.1	43.8	51.8	52.0
Heavy Trucks:	59.4	59.3	52.4	52.6	60.5	60.7
Vehicle Noise:	63.4	63.3	58.7	55.9	64.2	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	61	131
CNEL:	14	30	64	137

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,346 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,214 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.09	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.36	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.09	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.0	66.8	63.5	58.8	67.4	67.9
Medium Trucks:	56.7	56.7	48.0	49.7	57.8	57.9
Heavy Trucks:	64.8	64.7	57.9	58.0	66.0	66.1
Vehicle Noise:	69.3	69.1	64.7	61.7	70.0	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	501
CNEL:	53	114	245	527

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,488 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,224 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.08%
Medium Trucks:	84.6%	2.8%	12.6%	0.78%
Heavy Trucks:	82.4%	4.3%	13.3%	2.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.09	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.05	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.66	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.0	66.8	63.5	58.8	67.4	67.9
Medium Trucks:	57.0	57.0	48.3	50.0	58.1	58.2
Heavy Trucks:	66.2	66.1	59.3	59.5	67.4	67.6
Vehicle Noise:	69.8	69.7	65.0	62.4	70.7	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	553
CNEL:	58	125	269	580

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,567 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,580 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.05	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-21.21	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.94	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	67.9	64.7	59.9	68.5	69.0
Medium Trucks:	57.9	57.9	49.1	50.9	58.9	59.0
Heavy Trucks:	65.9	65.8	59.0	59.2	67.1	67.3
Vehicle Noise:	70.4	70.3	65.8	62.9	71.2	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	277	597
CNEL:	63	135	292	628

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: w/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,709 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,590 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.23%
Medium Trucks:	84.6%	2.8%	12.6%	0.77%
Heavy Trucks:	82.4%	4.3%	13.3%	2.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.05	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-20.98	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-16.81	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	67.9	64.7	59.9	68.6	69.0
Medium Trucks:	58.1	58.1	49.3	51.1	59.1	59.2
Heavy Trucks:	67.1	67.0	60.2	60.3	68.2	68.4
Vehicle Noise:	70.9	70.7	66.1	63.4	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	139	299	645
CNEL:	68	146	314	677

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY
Road Name: Nisqualli Rd.
Road Segment: w/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,019 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,821 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.67	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-20.59	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.32	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	68.6	65.3	60.5	69.2	69.6
Medium Trucks:	58.5	58.5	49.7	51.5	59.5	59.6
Heavy Trucks:	66.5	66.5	59.6	59.8	67.7	67.9
Vehicle Noise:	71.0	70.9	66.4	63.5	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	305	657
CNEL:	69	149	321	691

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P
Road Name: Nisqualli Rd.
Road Segment: w/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,161 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	1,831 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.29%
Medium Trucks:	84.6%	2.8%	12.6%	0.76%
Heavy Trucks:	82.4%	4.3%	13.3%	1.94%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.67	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-20.39	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-16.32	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	68.6	65.3	60.5	69.2	69.6
Medium Trucks:	58.7	58.7	49.9	51.7	59.7	59.8
Heavy Trucks:	67.5	67.5	60.6	60.8	68.7	68.9
Vehicle Noise:	71.4	71.3	66.7	64.0	72.2	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	702
CNEL:	74	159	342	737

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Nisqualli Rd.
Road Segment: e/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,227 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	226 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.40	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-29.66	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.39	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	59.5	56.2	51.5	60.1	60.6
Medium Trucks:	49.4	49.4	40.7	42.4	50.4	50.6
Heavy Trucks:	57.5	57.4	50.6	50.7	58.7	58.8
Vehicle Noise:	62.0	61.8	57.3	54.4	62.7	63.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	163
CNEL:	17	37	80	172

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Nisqualli Rd.
Road Segment: e/o Hesperia Rd.
Project Name: Nisqualli Trailer Lot
Job Number: 15241

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,404 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	238 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	94.49%
Medium Trucks:	84.6%	2.8%	12.6%	0.96%
Heavy Trucks:	82.4%	4.3%	13.3%	4.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.31	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-28.24	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.48	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	59.6	56.3	51.6	60.2	60.6
Medium Trucks:	50.8	50.9	42.1	43.8	51.9	52.0
Heavy Trucks:	62.4	62.3	55.5	55.6	63.6	63.7
Vehicle Noise:	64.5	64.4	59.0	57.3	65.4	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	25	53	115	247
CNEL:	26	55	119	257

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,724 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	611 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.08	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-25.34	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.07	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	63.8	60.5	55.8	64.4	64.9
Medium Trucks:	53.7	53.8	45.0	46.7	54.8	54.9
Heavy Trucks:	61.8	61.7	54.9	55.1	63.0	63.2
Vehicle Noise:	66.3	66.2	61.7	58.7	67.0	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	68	147	317
CNEL:	33	72	155	333

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC+P | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,901 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	623 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	96.48%
Medium Trucks:	84.6%	2.8%	12.6%	0.82%
Heavy Trucks:	82.4%	4.3%	13.3%	2.70%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.05	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-24.76	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.58	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	63.8	60.6	55.8	64.5	64.9
Medium Trucks:	54.3	54.3	45.6	47.3	55.3	55.5
Heavy Trucks:	64.3	64.2	57.4	57.6	65.5	65.6
Vehicle Noise:	67.4	67.3	62.4	60.0	68.2	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	82	177	381
CNEL:	40	86	185	398

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,366 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	656 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	97.72%
Medium Trucks:	84.6%	2.8%	12.6%	0.73%
Heavy Trucks:	82.4%	4.3%	13.3%	1.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.77	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-25.03	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.76	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	64.1	60.8	56.1	64.7	65.2
Medium Trucks:	54.0	54.1	45.3	47.0	55.1	55.2
Heavy Trucks:	62.1	62.0	55.2	55.4	63.3	63.5
Vehicle Noise:	66.6	66.5	62.0	59.0	67.3	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	72	154	332
CNEL:	35	75	162	350

Wednesday, November 22, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY+P | Project Name: Nisqualli Trailer Lot
Road Name: Nisqualli Rd. | Job Number: 15241
Road Segment: e/o Hesperia Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,543 vehicles
Peak Hour Percentage:	7.00%
Peak Hour Volume:	668 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	80.9%	9.5%	9.6%	96.56%
Medium Trucks:	84.6%	2.8%	12.6%	0.81%
Heavy Trucks:	82.4%	4.3%	13.3%	2.62%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.74	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-24.49	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.40	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	64.1	60.9	56.1	64.8	65.2
Medium Trucks:	54.6	54.6	45.8	47.6	55.6	55.7
Heavy Trucks:	64.5	64.4	57.6	57.7	65.6	65.8
Vehicle Noise:	67.6	67.5	62.6	60.3	68.5	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	85	183	395
CNEL:	41	89	192	413

Wednesday, November 22, 2023

APPENDIX 9.1:

CADNAA OPERATIONAL NOISE CALCULATIONS

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15241 - Nisqualli Truck Trailer Lot

CadnaA Noise Prediction Model: 15241-02.cna
Date: 09.08.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	42.2	42.2	48.9	65.0	55.0	0.0				5.00	a	6250995.33	2488703.64	5.00
RECEIVERS		R2	47.8	47.8	54.4	65.0	55.0	0.0				35.00	a	6251378.42	2487017.79	35.00
RECEIVERS		R3	45.2	45.2	51.8	65.0	55.0	0.0				35.00	a	6251367.81	2485916.33	35.00
RECEIVERS		R4	34.6	34.6	41.2	65.0	55.0	0.0				5.00	a	6247546.48	2483984.94	5.00
RECEIVERS		R5	38.1	38.1	44.8	65.0	55.0	0.0				5.00	a	6247772.16	2485424.09	5.00
RECEIVERS		R6	39.3	39.3	46.0	65.0	55.0	0.0				5.00	a	6247684.85	2486418.81	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.2	93.2	93.2	71.2	71.2	71.2	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	63.5	63.5	63.5	Lw	93.2									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6250478.87	2487091.03	8.00	0.00
						6249960.41	2487092.90	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6248819.22	2486801.19	8.00	0.00
						6249963.54	2486798.07	8.00	0.00
						6249956.04	2487285.29	8.00	0.00
						6250318.33	2487284.67	8.00	0.00
						6250342.46	2487269.82	8.00	0.00
						6250365.12	2487252.81	8.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6250386.12	2487233.79	8.00	0.00
						6250405.27	2487212.91	8.00	0.00
						6250422.42	2487190.36	8.00	0.00
						6250437.42	2487166.32	8.00	0.00
						6250450.13	2487141.00	8.00	0.00
						6250512.60	2487030.44	8.00	0.00
						6250528.21	2486941.11	8.00	0.00
						6250533.21	2486890.52	8.00	0.00
						6249962.29	2486896.76	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	103.4	103.4	103.4	69.4	69.4	69.4	Lw	103.4					8	a
AREASOURCE		DOCK02	103.4	103.4	103.4	67.2	67.2	67.2	Lw	103.4					8	a
AREASOURCE		DOCK03	103.4	103.4	103.4	66.2	66.2	66.2	Lw	103.4					8	a
AREASOURCE		DOCK04	103.4	103.4	103.4	68.9	68.9	68.9	Lw	103.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DOCK01	8.00	a			6249860.78	2487311.53	8.00	0.00
						6249923.87	2487311.53	8.00	0.00
						6249919.50	2486867.41	8.00	0.00
						6249860.78	2486867.41	8.00	0.00
AREASOURCE	DOCK02	8.00	a			6249993.21	2487244.69	8.00	0.00
						6250319.27	2487245.94	8.00	0.00
						6250319.89	2487185.35	8.00	0.00
						6250401.10	2487182.85	8.00	0.00
						6250400.47	2487121.63	8.00	0.00
						6249994.46	2487124.76	8.00	0.00
AREASOURCE	DOCK03	8.00	a			6249994.46	2487049.18	8.00	0.00
						6250466.68	2487046.68	8.00	0.00
						6250468.56	2486928.00	8.00	0.00
						6249995.08	2486930.49	8.00	0.00
AREASOURCE	DOCK04	8.00	a			6250059.42	2486853.66	8.00	0.00
						6250556.01	2486857.41	8.00	0.00
						6250566.63	2486794.32	8.00	0.00
						6250063.17	2486796.20	8.00	0.00

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE CALCULATIONS

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15241 - Nisqualli Truck Trailer Lot

CadnaA Noise Prediction Model: 15241-02_Construction.cna
Date: 09.08.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	48.2	48.2	54.8	65.0	55.0	0.0				5.00	a	6250995.33	2488703.64	5.00
RECEIVERS		R2	53.7	53.7	60.3	65.0	55.0	0.0				35.00	a	6251378.42	2487017.79	35.00
RECEIVERS		R3	50.8	50.8	57.5	65.0	55.0	0.0				35.00	a	6251367.81	2485916.33	35.00
RECEIVERS		R4	40.7	40.7	47.3	65.0	55.0	0.0				5.00	a	6247546.48	2483984.94	5.00
RECEIVERS		R5	44.4	44.4	51.0	65.0	55.0	0.0				5.00	a	6247772.16	2485424.09	5.00
RECEIVERS		R6	45.8	45.8	52.5	65.0	55.0	0.0				5.00	a	6247684.85	2486418.81	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		SITEBOUNDARY00001	115.6	115.6	115.6	69.5	69.5	69.5	Lw	115.6					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	SITEBOUNDARY00001	8.00	a			6248819.26	2486822.40	8.00	0.00
						6249854.81	2486819.26	8.00	0.00
						6249856.05	2487414.16	8.00	0.00
						6250095.04	2487413.56	8.00	0.00
						6250129.09	2487411.77	8.00	0.00
						6250162.93	2487407.68	8.00	0.00
						6250196.42	2487401.33	8.00	0.00
						6250229.41	2487392.75	8.00	0.00
						6250229.35	2487361.39	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6250262.54	2487349.59	8.00	0.00
				6250294.76	2487335.37	8.00	0.00
				6250325.84	2487318.81	8.00	0.00
				6250355.62	2487299.99	8.00	0.00
				6250383.92	2487279.02	8.00	0.00
				6250410.59	2487256.02	8.00	0.00
				6250435.48	2487231.10	8.00	0.00
				6250458.47	2487204.42	8.00	0.00
				6250479.42	2487176.10	8.00	0.00
				6250498.21	2487146.32	8.00	0.00
				6250514.76	2487115.23	8.00	0.00
				6250528.96	2487082.99	8.00	0.00
				6250540.73	2487049.80	8.00	0.00
				6250550.02	2487015.83	8.00	0.00
				6250583.96	2486775.28	8.00	0.00
				6248819.18	2486778.39	8.00	0.00